



# CUET-UG

COMMON UNIVERSITY ENTRANCE TEST-UG

SAMPLE

# ENGLISH LANGUAGE



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# 7.

## REARRANGEMENT OF JUMBLED PARTS

**Rearrangement of jumbled parts**, often referred to as "sentence rearrangement" or "sentence reordering," is a common type of question in English language tests, especially in examinations assessing reading comprehension and logical thinking skills. This exercise assesses a test-taker's ability to organize a set of disordered sentence fragments into a coherent and grammatically correct sequence. Mastering the skill of rearranging jumbled parts can significantly enhance the ability to comprehend and organize information effectively.

Practice and a clear understanding of sentence structure and logical flow are key to success in these types of questions. Some noteworthy points are –

- At first look for the subject and the predicate which contains the verb.
- Read the sentence carefully after rearrangement. It should make sense and be grammatically correct.
- Do not forget to count the words as it should be same as given in the jumbled sentences.
- Do not use any other words other than the ones given in the sentences.

Questions of rearrangement of jumbled parts are generally asked in following formats -

### Format I : Into logical paragraph

In these types of questions, a sentence split into six parts will be given. The first and the last part of the sentence are numbered 1 and 6. The rest are named P, Q, R and S not given in their proper order. One need to rearrange these parts to make a meaningful sentence along with the first (1) and the last part (6).

#### Illustration :

- Q.1 (1) The advantage of travelling  
(P) customs and manner is that  
(Q) we learn to appreciate the good points of others  
(R) to different places and having  
(S) the opportunity of observing people's  
(6) and our prejudices against them disappear.  
(a) QRSP (b) PQRS (c) RSPQ (d) SPQR

Ans. **(c)** The advantage of travelling to different places and having the opportunity of observing people's customs and manner is that we learn to appreciate the good points of others and our prejudices against them disappear.

### FORMAT II : Into meaningful sentences

In these types of questions, there is a sentence of which some parts have been jumbled up. These parts are labeled P, Q, R and S. One is required to rearrange these parts in a sequence, to produce the correct sentence.

#### Illustration :

- Q.1 We have to  
(P) as we see it (Q) speak the truth  
(R) there is falsehood and darkness (S) even if all around us  
(a) RQSP (b) QRPS (c) RSQP (d) QPSR

Ans. **(d)** We have to speak the truth as we see it even if all around us there is falsehood and darkness.

**PRACTICE EXERCISE**

**CONCEPT ENHANCER 1**

**Forming into logical paragraph,** A sentence is split into six parts. The first and the last part of the sentence are numbered 1 and 6. The rest are named P, Q, R and S not given in their proper order. You have to rearrange these parts in order to make a meaningful sentence along with the first (1) and the last part (6).

1. (1) There is a continuous demand  
(P) are formed to train humanity  
(Q) for destructive purposes and world organizations  
(R) in the art of settling their disputes  
(S) to ban the application of science  
(6) by peaceful negotiations  
(a) SQPR (b) QSRP  
(c) PRSQ (d) RPQS
2. (1) The unfortunate person  
(P) of social contempt  
(Q) he is also the victim  
(R) who is unemployed, is  
(S) not only the object of self-pity  
(6) and a danger to the society  
(a) PQSR (b) SRPQ  
(c) RSQP (d) SPRQ
3. (1) In every country, children  
(P) regarding their proper development because  
(Q) great care is taken  
(R) are given good education and  
(S) what they become depends  
(6) upon this impressionable period of their lives  
(a) QSRP (b) SPQR  
(c) PRSQ (d) RQPS
4. (1) If some are able to dominate  
(P) of unity and the temptation  
(Q) of gaining some advantage on  
(R) over others, this is at least  
(S) partially due to weakness, the lack  
(6) the part of those who submit  
(a) PQRS (b) RSPQ  
(c) SQRP (d) PRSQ
5. (1) Second, we shall include in the  
(P) labour input of the farmers  
(Q) the managerial and  
(R) at a higher wage, reflecting

- (S) cost of production the  
(6) entrepreneurial role of the farmers  
(a) QRPS (b) RQPS  
(c) SPRQ (d) QPRS
6. (1) Thirty-seven years later  
(P) to reiterate that the highest  
(Q) to farming, to food and agriculture,  
(R) the time has come for us  
(S) national priority must be given  
(6) which are the corner-stone of our economy  
(a) RSPQ (b) SQPR  
(c) RPSQ (d) QPSR
7. (1) In order to enable  
(P) their cropping pattern  
(Q) farmers to rationally determine  
(R) notified by the Government  
(S) support prices are being  
(6) in advance of the sowing  
(a) QPSR (b) SPQR  
(c) RSPQ (d) PQSR
8. (1) First, we shall determine the wage costs  
(P) minimum wage for agriculture  
(Q) on the basis of the statutory  
(R) labour notified by the  
(S) state or the actual wages paid  
(6) whichever is higher  
(a) PRSQ (b) QPRS  
(c) PSQR (d) SRPQ
9. (1) He must again learn to invoke the  
(P) recognize, as did the ancient in India  
(Q) the earth and the atmosphere, only so  
(R) centuries ago, that one can take from  
(S) energy of growing things and to  
(6) much as one puts back into them  
(a) PSQR (b) SPQR  
(c) SPRQ (d) PQSR
10. (1) We should have a  
(P) to life, centered to mean  
(Q) more comprehensive approach  
(R) but an individual with  
(S) not as a statistic  
(6) many sides to his personality  
(a) PQRS (b) QPSR  
(c) SQPR (d) QPRS

11. (1) The individual civilization has  
(P) efficient man, he whose entire  
(Q) promoted the concept of the  
(R) producing more in a given unit of time  
(S) energies are concentrated on  
(6) and form a given unit of manpower  
(a) PQRS (b) QPSR  
(c) SRQP (d) RSPQ
12. (1) Many of the advanced countries  
(P) the exploration of their own masses  
(Q) present affluence by their domination  
(R) of today have reached their  
(S) over other races and countries and  
(6) and their own natural resources  
(a) PQRS (b) RQSP  
(c) SQPR (d) QSPR
13. (1) The solution of these problems  
(P) of marginal importance but  
(Q) the unfolding of the very  
(R) must be an integral part of  
(S) cannot be an isolated phenomena  
(6) process of development  
(a) PQRS (b) SPRQ  
(c) PSQR (d) RSPQ
14. (1) Pakistan cannot claim to  
(P) not done too badly  
(Q) battle field but it has  
(R) over India in the  
(S) have any decisive victory  
(6) in the publicity war  
(a) SQPR (b) SRQP  
(c) PRSQ (d) QPSR
15. (1) Laughter is a  
(P) must first accept and  
(Q) gift-one that you  
(R) yourself before you can  
(S) cultivate within  
(6) share it with others  
(a) PRSQ (b) SQPR  
(c) RPQS (d) QPSR
16. (1) To this day, they  
(P) to view his mistakes  
(Q) the socio-economic milieu  
(R) look charitable enough  
(S) in the context of  
(6) in which he operated  
(a) PQRS (b) SQPR  
(c) RPSQ (d) SPQR
17. (1) The difference between a  
(P) is that a politician thinks  
(Q) and a statesman thinks  
(R) politician and a statesman  
(S) of the next election  
(6) of the next generation  
(a) QPSR (b) RSPQ  
(c) RPSQ (d) PSQR
18. (1) Even one year after the  
(P) some politicians and  
(Q) death of Rajiv Gandhi  
(R) open their mouths without  
(S) journalists are unable to  
(6) mentioning the Bofors deal  
(a) QPSR (b) QRSP  
(c) QPRS (d) PQRS
19. (1) We acknowledge with  
(P) of your letter  
(Q) concerning the  
(R) thanks the receipt  
(S) of March 15, 1996  
(6) subject mentioned above  
(a) SQPR (b) PSRQ  
(c) RPSQ (d) PQRS
20. (1) It always received  
(P) kindness, amusing  
(Q) and interesting  
(R) us in youth, comforting  
(S) us with the same  
(6) and consoling us  
(a) SPQR (b) SRQS  
(c) SQPR (d) SPRQ
21. (1) We are talking about  
(P) when our political  
(Q) national leaders are  
(R) religion corrupting politics  
(S) parties, as well as  
(6) steeped in corruption  
(a) RPSQ (b) PRQS  
(c) PSRQ (d) PQRS
22. (1) You, are, therefore  
(P) into the matter and  
(Q) payment is received  
(R) requested to look  
(S) ensure that the  
(6) without further delay  
(a) RSPQ (b) RPSQ  
(c) RSQP (d) RQSP

23. (1) I would, therefore, now  
(P) my unqualified  
(Q) and request the next  
(R) support to their views  
(S) like to express  
(6) speaker to take the floor  
(a) SPRQ (b) SRPQ  
(c) SQPR (d) SRQP
24. (1) When the writer of this article made  
(P) registered and action was  
(Q) special efforts to find out whether  
(R) informed that a case had been  
(S) any action had been taken, he was  
(6) being taken by the police  
(a) RSPQ (b) PQRS  
(c) QSRP (d) QPRS
25. (1) It is necessary not only  
(P) also to be very vigilant  
(Q) time of new recruitment to  
(R) against further penetration at the  
(S) to weed out moles but  
(6) the police force in the state  
(a) PSRQ (b) SRQP  
(c) SPRO (d) PRQS

**CONCEPT ENHANCER 2**

**Forming into meaningful sentence**, in each of the questions there is a sentence of which some parts have been jumbled up. You are required to rearrange these parts, which are labeled P, Q, R and S, to produce the correct sentence. Choose the proper sequence.

1. The majestic mahogany table  
(P) belongs to an old prince  
(Q) which had one leg missing  
(R) who is now impoverished  
(S) but not without some pride  
(a) PQRS (b) QRSP  
(c) PRSQ (d) QPRS
2. By this time  
(P) at the railway station  
(Q) reported mass looting  
(R) reports of violence were flooding in  
(S) while police dispatches  
(a) RSPQ (b) SPRQ  
(c) SQRP (d) RSQP
3. It would  
(P) appear from the statement  
(Q) about the policy of the management  
(R) in dealing with the strike  
(S) that he was quite in the dark  
(a) RPSQ (b) PSQP  
(c) RQPS (d) PRSQ
4. About a fortnight after  
(P) persuading Rajiv to give up  
(Q) Sanjay's unfortunate death  
(R) his career as a pilot  
(S) I breached the subject of  
(a) PRSQ (b) PQRS  
(c) QSPR (d) PSQR
5. Indiraji agreed with my  
(P) heart was in flying  
(Q) but said that Rajiv's  
(R) and he would loath to leave it  
(S) line of thinking  
(a) SQPR (b) RSPQ  
(c) QSRP (d) RQSP
6. It is well known that  
(P) the effect (Q) is very bad  
(R) on the children (S) of crime  
(a) PSRQ (b) SPRQ  
(c) QPSR (d) QSRP
7. Little  
(P) that he had been letdown  
(Q) stood by all these years  
(R) did he realise  
(S) say by a colleague whom he had  
(a) RSQP (b) QSRP  
(c) QSPR (d) RPSQ
8. The national unity of a free people  
(P) to make it impracticable  
(Q) for there to be an arbitrary administration  
(R) depends upon a sufficiently even  
balance of political power  
(S) against a revolutionary opposition that is  
irreconcilably opposed to it  
(a) QRPS (b) QRSP  
(c) RSPQ (d) RPQS
9. People  
(P) at his dispensary  
(Q) went to him  
(R) of all professions  
(S) for medicine and treatment  
(a) QPRS (b) RPQS  
(c) RQSP (d) QRPS

10. He was so kind and generous that  
(P) he not only  
(Q) made others do so  
(R) but also  
(S) helped them himself  
(a) PSRQ (b) SPQR  
(c) PRSQ (d) QPRS
11. In preparing manuscripts for the  
(P) requested to write or  
(Q) type on one side  
(R) press, correspondence are  
(S) of the paper only  
(a) RPQS (b) PQRS  
(c) RPQS (d) QPRS
12. All communication intended for  
(P) must be addressed  
(Q) to the editor only  
(R) publication in The Tribune  
(S) and not to any other member of the staff  
(a) RPQS (b) QPRS  
(c) RQPS (d) PQRS
13. The Editor cannot  
(P) or articles unless a stamped and self  
addressed  
(Q) rejected communication and  
(R) undertake to return  
(S) envelope is enclosed for the purpose  
(a) SPRQ (b) RSPQ  
(c) RQPS (d) QSRP
14. All members of the staff must  
(P) there till the lunch break without  
(Q) sharp and must not move from  
(R) be in their seats  
(S) the permission of the senior officer  
(a) SPQR (b) QSRP  
(c) RPQS (d) QPRS
15. In order to save time, effort and  
(P) instead of issuing individual leave  
orders  
(Q) these orders should be issued in a  
(R) expenses it has been decided that  
(S) consolidated form for each category of  
staff separately  
(a) RPQS (b) PQRS  
(c) QSRP (d) SPRQ
16. He went to the farthest limit  
(P) in spreading factual knowledge  
(Q) through his dedicated involvement  
(R) organizing relief and rehabilitation  
measures  
(S) about the disease and by  
(a) PSRQ (b) QPSR  
(c) PQRS (d) QSRP
17. Sometimes I think that the  
(P) remembrance of suffering  
(Q) to keep in touch with human conditions  
(R) the only means we have  
(S) search for suffering and the  
(a) RSPQ (b) SPRQ  
(c) SRPQ (d) PSRQ
18. It is quite conveniently forgotten  
(P) discrepancy in the country  
(Q) that there is great  
(R) and political will needed for  
implementation  
(S) between the stated politics  
(a) QPSR (b) SPRQ  
(c) SRPQ (d) PSRQ
19. President Venkatraman quite  
(P) scientific application of remedial  
(Q) appropriately spoke of creative  
(R) methods to arrest leprosy  
(S) compassion combined with a  
(a) QSPR (b) PSRQ  
(c) QPRS (d) QSPR
20. As a result of the  
(P) Programme. 196 leprosy  
(Q) National Leprosy Eradication  
(R) endemic districts of our country  
benefitted  
(S) implementation of the  
(a) QSPR (b) PSRQ  
(c) SQRP (d) QSPR
21. The only hopeful sign  
(P) tendency among ordinary  
(Q) that there is an interesting  
(R) people to see health as a right  
(S) in such a situation is  
(a) PSRQ (b) SQRP  
(c) RQSP (d) SQRP
22. If the government takes  
(P) efforts to maintain its image  
(Q) from this fact, its  
(R) the appropriate lessons  
(S) as custodian of Welfare State would  
succeed  
(a) SRPQ (b) QSRP  
(c) RQPS (d) RSPQ

23. It will be better  
(P) to a few than enroll  
(Q) to provide quality education  
(R) them out as graduates  
(S) en masse and churn  
(a) RPSQ (b) SPRQ  
(c) QPSR (d) PRSQ
24. The only choice  
(P) universities will be to  
(Q) tuition fees to meet expenditure  
(R) left before the Indian  
(S) substantially raise the  
(a) RPSQ (b) SPQR  
(c) SQPR (d) RPSQ
25. Paucity of funds  
(P) universities cannot make  
(Q) essentials like books and equipments  
(R) sufficient expenditure on  
(S) ordains that the  
(a) RSPQ (b) SPRQ  
(c) SQRQ (d) PQRS

**ACCURACY BOOSTER**

**Test your potential** by forming meaningful sentences.

1. (1) It is on the basis of  
(P) that we have been able to  
(Q) a deeply democratic domestic-policy  
(R) build a self-reliant economy  
(S) self-reliance in agriculture  
(6) and an independent foreign policy  
(a) SPRQ (b) RPSQ  
(c) SRPQ (d) PQSR
2. (1) You all are  
(P) sixth annual general  
(Q) meeting of your company  
(R) welcome to this  
(S) where we shall also discuss  
(6) future plans for growth  
(a) RPSQ (b) PRQS  
(c) RPQS (d) SPQR
3. (1) The well-known American  
(P) wielded significant position  
(Q) is being termed as 'favourable'  
(R) in American academic circles  
(S) academician, who has  
(6) choice of Ambassador to India  
(a) SPRQ (b) RQSP  
(c) SPQR (d) PQRS

4. (1) It is a matter of  
(P) to bring to your  
(Q) payment against supplies  
(R) regret that we have  
(S) notice the overdue  
(6) of paper made to you  
(a) PRSQ (b) RPSQ  
(c) RPQS (d) PQRS
5. (1) Looking back on the  
(P) one may feel  
(Q) the extent of personal  
(R) progress of India so far  
(S) reasonably satisfied with  
(6) liberty the people enjoy here  
(a) PRSQ (b) RPQS  
(c) RPSQ (d) PQRS
6. (1) I remember Edward Thompson,  
(P) and a good friend of India  
(Q) that wild life was fast  
(R) once telling Mahatma Gandhi  
(S) a British traveler and writer  
(6) disappearing in this great country  
(a) PSRQ (b) SRPQ  
(c) QSPR (d) SPRQ
7. (1) Now as we struggle to create  
(P) it is in vastly different circumstances  
(Q) a better life for our people  
(R) watchfulness, we cannot indulge in such  
(S) for obviously in today's eagle-eyed  
(6) practices even for worthwhile purposes  
(a) PSRQ (b) SPRQ  
(c) SQPR (d) QPSR
8. (1) We do not wish to improve  
(P) further and yet we cannot for  
(Q) the ecology and environment any  
(R) poverty of a large number of  
(S) a moment forget the grim  
(6) people in this vast country  
(a) PQRS (b) RQPS  
(c) QPRS (d) QPSR
9. (1) Some of our own beautiful wild  
(P) miles of forests with beautiful old  
(Q) life has been completely wiped out  
(R) have been destroyed, as a  
(S) trees, mute witnesses to history,  
(6) result of rapid industrialization  
(a) SQPR (b) RQSP  
(c) RSPQ (d) QPSR

10. (1) For instance, unless we are  
(P) employment to those who live  
(Q) cannot prevent them from combing  
(R) in a position to provide  
(S) in or around our jungles we  
(6) the forest for food or livelihood  
(a) SPQR (b) QSPR  
(c) RPSQ (d) RPQS
11. (1) In most of the other conflicts  
(P) great powers, as instigators of  
(Q) intelligence, or simply as cheering  
(R) too, the involvement of the  
(S) supplies of arms and war-related  
(6) partisans is easily discernible  
(a) RPQS (b) PRSQ  
(c) QPRS (d) RPSQ
12. (1) Throughout its very long  
(P) eight years, the security  
(Q) and murderous course of  
(R) other way as if war  
(S) council choose to look the  
(6) bore no relation to security  
(a) SPQR (b) RPQS  
(c) QPRS (d) QPSR
13. (1) At such a critical time  
(P) telling the Parliament that  
(Q) of India was caught  
(R) India has no policy on the  
(S) the then foreign minister  
(6) Gulf crisis and therefore, no role  
(a) SQPR (b) RSPQ  
(c) QSPR (d) SQRP
14. (1) He does not want  
(P) a communist but  
(Q) are likely to bring out the  
(R) to be branded  
(S) the steps he is taking  
(6) true nature of his politics  
(a) SPRQ (b) RPSQ  
(c) QPSR (d) RSPQ
15. (1) His declaration that he  
(P) all minorities does not  
(Q) will be depending mainly  
(R) will champion the cause of  
(S) obscure the fact that he  
(6) on the support of the Afro-Americans  
(a) SPRQ (b) RPSQ  
(c) PQRS (d) RPSQ
16. (1) His famous speech  
(P) World War of blood  
(Q) had an electrifying  
(R) sweat and tears  
(S) during the second  
(6) effect among people  
(a) PRSQ (b) QPSR  
(c) SPQR (d) SPRQ
17. (1) There are poetic  
(P) speech on Independence  
(Q) beauty in his midnight  
(R) spoke about our  
(S) Day when he  
(6) Tryst with Destiny  
(a) QPRS (b) RSPQ  
(c) QPSR (d) SRPQ
18. (1) His spontaneous  
(P) the assassination of  
(Q) light having gone away  
(R) Mahatma Gandhi about the  
(S) emotional oration on  
(6) had tremendous impact  
(a) QPSR (b) SPRQ  
(c) PSRQ (d) SRPQ
19. (1) Churchill ardently believed  
(P) of the British Empire  
(Q) is the supremacy  
(R) upholding the old discriminatory  
(S) and was devoted to  
(6) order at all costs  
(a) QPSR (b) RSPQ  
(c) PSRQ (d) SRPQ
20. (1) Nehru fervently believed in  
(P) India but he was  
(Q) who always unrelentingly  
(R) the glory and greatness of  
(S) a great humanist  
(6) struggled against colonialism  
(a) QPSR (b) RSPQ  
(c) PSRQ (d) RPSQ
21. (1) Nehru on the other hand  
(P) lay the foundation  
(Q) polity and establish  
(R) hand, had to  
(S) of a new democratic  
(6) altogether new traditions  
(a) SPQR (b) RSPQ  
(c) RPSQ (d) SRQP

22. (1) Churchill task was  
(P) functioning in  
(Q) democratic polity with  
(R) a well established  
(S) easier because he was  
(6) a long tradition  
(a) SPRQ                      (b) PSRQ  
(c) PQSR                      (d) RSPQ
23. (1) He installed his daughter  
(P) party when she did  
(Q) as the President of his  
(R) credentials for that onerous  
(S) not having convincing  
(6) appointment at that time  
(a) QSPR                      (b) SRQP  
(c) RSPQ                      (d) QPSR
24. (1)The British people fully  
(P) of Churchill and he  
(Q) described as the greatest  
(R) was even being  
(S) appreciated the greatness  
(6) Englishmen of all times  
(a) SPRQ                      (b) SRQP  
(c) RSPQ                      (d) QPSR
25. (1) Yes they were also  
(P) weakness and realized  
(Q) was concerned he  
(R) cognizant of his  
(S) that so far as India  
(6) had a blind spot  
(a) SRQP                      (b) RPSQ  
(c) QPRS                      (d) RPQS

# 8. SYNONYMS & ANTONYMS

Synonyms and antonyms are two different types of word relationships that involve similarities and differences in the meanings of words.

**Synonyms:** Synonyms are words that have **similar meanings**. When two words are synonyms, they can often be used interchangeably in a sentence without significantly changing the meaning.

**Examples of synonyms:**

*Happy and Joyful, Large and Big, Smart and Intelligent, Start and Begin, Fast and Quick*

**Antonyms:** Antonyms are words that have **opposite meanings**. When two words are antonyms, they have contrasting meanings, and using one instead of the other can completely change the meaning of a sentence.

**Examples of antonyms:**

*Hot and Cold, Love and Hate, Light and Dark, Up and Down, Happy and Sad*

Both synonyms and antonyms play important roles in language, allowing writers and speakers to convey nuances, emphasize differences, or create vivid descriptions. Understanding these word relationships is essential for effective communication and expanding one's vocabulary. Synonyms can be particularly helpful for enriching one's language and avoiding repetition, while antonyms are useful for expressing opposites or contradictions in writing and speech to make it impactful.

**Some common words and their Synonyms and Antonyms**

**A**

**AWKWARD**

Synonyms: clumsy, ungainly, ponderous, rough

Antonyms: clever, dexterous, apt, skillful

**APPARENT**

Synonyms: evident, obvious, perceptible, distinct

Antonyms: masked, obscure, indistinct, doubtful

**ALLURE**

Synonyms: entice, fascinate, tempt, seduce

Antonyms: repulse, repel, deter, distaste

**ABORTIVE**

Synonyms: vain, useless, fruitless, unproductive

Antonyms: effectual, productive, successful, progressive

**ABOMINABLE**

Synonyms: odious, detestable, repugnant, aversion

Antonyms: likeable, pleasant, affectionate, enjoyable

**ALLAY**

Synonyms: pacify, soothe, lighten, assuage

Antonyms: aggravate, heighten, agitate, excite

**AXIOM**

Synonyms: maxim, saying, dictum, truth

Antonyms: absurdity, blunder, ridiculousness, irrelevant

**ASSIDUOUS**

Synonyms: constant, diligent, attentive, persevering

Antonyms: indifference, careless, indolent, lethargic

**ABJURE**

Synonyms: forsake, renounce, retract, revoke

Antonyms: approve, sanction, patronize, adopt

**ABJECT**

Synonyms: despicable, servile, base, contemptible

Antonyms: exalted, commendable, praiseworthy, imposing

**AVERSION**

Synonyms: dislike, hatred, indifferent, apathy

Antonyms: affection, fondness, niceness, liking

**AUTHENTIC**

Synonyms: genuine, reliable, valid, guaranteed

Antonyms: fictitious, counterfeit, unreal, false

**AUDACITY**

Synonyms: boldness, arrogance, insolence, haughtiness

Antonyms: mildness, humility, cowardice, submission

**ASTUTE**

Synonyms: clever, intelligent, wise, brilliant

Antonyms: dull, unintelligent, shallow, solid

**ABETTOR**

Synonyms: assistant, accomplice, colleague, associate

Antonyms: opponent, adversary, antagonist, rival

**ABATE**

Synonyms: moderate, mitigate, lessen, decrease

Antonyms: aggravate, intensify, augment, supplement

**ARRAIGN**

Synonyms: charge, blame, accuse, complain

Antonyms: exculpate, pardon, condone, exonerate

**APATHY**

Synonyms: unconcern, indifference, insensitivity, aloofness

Antonyms: concern, care, anxiety, eagerness

**ALIEN**

Synonyms: foreigner, outsider, stranger, emigrant

Antonyms: native, citizen, resident, occupant

**ALACRITY**

Synonyms: swiftness, briskness, promptness, speed

Antonyms: laziness, sluggishness, indolence, lethargy

**AFFRONT**

Synonyms: provoke, exasperate, indignity, irreverence

Antonyms: conciliate, appease, mollify, assuage

**ADVERSITY**

Synonyms: misfortune, calamity, misery, affliction

Antonyms: prosperity, fortune, assistance, favour

**ANTIQUUE**

Synonyms: ancient, old fashioned, primitive, of past

Antonyms: modern, recent, novelty, vogue

**ANTIPATHY**

Synonyms: hostility, aversion, disillusion, dislike

Antonyms: admiration, approval, fascination, devotion

**AMPLIFY**

Synonyms: enlarge, extend, dilation, elevate

Antonyms: curtail, lessen, diminution, contraction

**AMASS**

Synonyms: gather, accumulate, store, collect

Antonyms: disperse, dissipate, spend, scatter

**ALLEVIATE**

Synonyms: abate, relieve, mitigate, lessen

Antonyms: intensify, augment, aggravate, enhance

**ADMONISH**

Synonyms: counsel, reprove, warn, chastise

Antonyms: approve, applaud, praise, flattery

**ADJACENT**

Synonyms: adjoining, beside, proximity, closeness

Antonyms: distant, separate, remoteness, aloofness

**ADHERENT**

Synonyms: follower, disciple, dependent, supporter

Antonyms: rival, adversary, opponent, antagonist

**ACCOMPLISH**

Synonyms: attain, succeed, triumph, exploit

Antonyms: forsake, deter, disappoint, collapse

**ABSOLVE**

Synonyms: pardon, forgive, reprieve, relent

Antonyms: compel, accuse, charge, bind

**ACRIMONY**

Synonyms: harshness, bitterness, inhumanity, enmity

Antonyms: sweetness, courtesy, humanity, benevolence

**ACCUMULATION**

Synonyms: store, amass, preservation, conservation

Antonyms: scattering, dissipation, separation, division

**ACCORD**

Synonyms: agreement, harmony, consonance, unison

Antonyms: disagreement, denial, controversy, discord

**ABOUND**

Synonyms: flourish, swell, teem, plentiful

Antonyms: deficient, destitute, want, scarce

**ADAMANT**

Synonyms: stubborn, obdurate, inflexible, rigid

Antonyms: flexible, soft, suppleness, tender

**ABASH**

Synonyms: discourage, confound, embarrass, discompose

Antonyms: encourage, uphold, embolden, hearten

**ADJUNCT**

Synonyms: appendage, complement, addition, joining

Antonyms: lessening, separation, subtraction, removal

**ADROIT**

Synonyms: proficient, expert, skilful, adept

Antonyms: inept, clumsy, unskilled, awkward

**B**

**BUSTLE**

Synonyms: haste, tumult, stir, flurry

Antonyms: slowness, sluggishness, quiet, inertness

**BRITTLE**

Synonyms: frail, fragile, delicate, breakable

Antonyms: tough, enduring, unbreakable, strong

**BLEMISH**

Synonyms: fault, smirch, stigma, stain

Antonyms: purity, impeccable, spotless, stainless

**BLEAK**

Synonyms: dismal, gloomy, chilly, dreary

Antonyms: bright, pleasant, balmy, cheerful

**BLAME**

Synonyms: reprove, upbraid, censure, reproach

Antonyms: commend, applaud, laud, praise

**BENEVOLENCE**

Synonyms: humanity, generosity, charity, liberality

Antonyms: malevolence, inhumanity, malignity, unkindness

**BARBAROUS**

Synonyms: uncivilized, savage, untamed, brutal

Antonyms: cultured, humane, refined, gentle

**BAFFLE**

Synonyms: confound, elude, frustrate, perplex

Antonyms: poise, composure, facilitate, co-operate

**BEWITCHING**

Synonyms: magical, fascinating, tantalizing, spell binding

Antonyms: repulsive, repugnant, nauseating, disgusting

**C**

**CRITERION**

Synonyms: measurement, test, standard, touchstone

Antonyms: fancy, probability, haphazard, conjecture

**COVETOUS**

Synonyms: cupidity, avarice, greed, voracity

Antonyms: liberality, benevolence, selfless, magnanimous

**CORPULENT**

Synonyms: obese, ugly, fat, awkward

Antonyms: thin, lean, slim, delicate

**CONVERT**

Synonyms: change, transform, transmute, proselytize

Antonyms: persist, maintain, enduring, perpetual

**CONVENIENT**

Synonyms: handy, suited, comfortable, advantageous

Antonyms: unsuitable, tedious, unpractical, fatiguing

**CONTRARY**

Synonyms: dissimilar, conflicting, contradictory, opposite

Antonyms: similar, alike, homogeneous, resembling

**CONTRADICT**

Synonyms: impugn, deny, oppose, confront

Antonyms: approve, confirm, sanction, endorse

**CONTEMPT**

Synonyms: scorn, disregard, disdain, despicable

Antonyms: regard, approval, praise, recommend

**CONSTERNATION**

Synonyms: fear, disappointment, dismay, hopelessness

Antonyms: peace, repose, calm, fearless

**CONSPICUOUS**

Synonyms: distinguished, prominent, obvious, visible

Antonyms: concealed, obscure, hidden, unapparent

**CONSOLIDATE**

Synonyms: combine, condense, compact, strong

Antonyms: separate, sever, weak, scattering

**CONSEQUENCE**

Synonyms: effect, outcome, repercussion, result

Antonyms: origin, start, beginning, incipient

**CONSENT**

Synonyms: agree, permit, accede, assent

Antonyms: object, disagree, dissent, differ

**CONSCIOUS**

Synonyms: aware, apprised, knowledge, informed

Antonyms: unaware, ignorant, unfeeling, faint

**CONCEDE**

Synonyms: yield, assent, permit, sanction

Antonyms: deny, reject, dissent, disallow

**COMPRISE**

Synonyms: include, contain, consist, compose

Antonyms: reject, lack, exclude, except

**COMPASSION**

Synonyms: kindness, sympathy, clemency, commiseration

Antonyms: cruelty, barbarity, persecution, apathy

**CONCUR**

Synonyms: approve, agree, consent, endorse

Antonyms: differ, disagree, dissent, oppose

**COMMODOUS**

Synonyms: convenient, suitable, roomy, comfortable

Antonyms: inconvenient, unsuitable, uncomfortable, confined

**COLLISION**

Synonyms: encounter, clash, conflict, dissenting

Antonyms: agreement, harmony, compatible, union

**CHERISH**

Synonyms: nurture, treasure, foster, encourage

Antonyms: abandon, forsake, renounce, discard

**CHASTISE**

Synonyms: punish, admonish, scold, reprove  
Antonyms: cheer, comfort, encourage, stimulate

**CHASTE**

Synonyms: virtuous, pure, honorable, immaculate  
Antonyms: defiled, licentious, sullied, lustful

**CESSATION**

Synonyms: intermission, pause, discontinuity, hindrance  
Antonyms: continuity, perpetuation, unceasing, prolongation

**CATASTROPHE**

Synonyms: disaster, calamity, misfortune, mishap  
Antonyms: prosperity, blessing, restoration, resurgence

**CARICATURE**

Synonyms: exaggeration, imitation, ridicule, parody  
Antonyms: exactness, precision, reality, truth

**CARESS**

Synonyms: fondle, embrace, hug, snuggle  
Antonyms: repulse, spurn, displease, repel

**CAPTIVITY**

Synonyms: imprisonment, confinement, apprehend, restrain  
Antonyms: freedom, liberty, liberation, release

**CAPTIVATE**

Synonyms: charm, fascinate, enchant, lure  
Antonyms: disillusion, offend, scorn, despise

**CAPTIOUS**

Synonyms: irritate, fretful, critical, carping  
Antonyms: appreciative, considerate, laudatory, thoughtful

**CAPABLE**

Synonyms: competent, suitable, qualified, able  
Antonyms: incompetent, inefficient, imbecile, inept

**CALUMNY**

Synonyms: defamation, aspersion, accusation, libel  
Antonyms: commendation, praise, vindication, goodwill

**CALLOUS**

Synonyms: obdurate, unfeeling, heartless, indifferent  
Antonyms: compassionate, tender, kind, sympathetic

**CALCULATE**

Synonyms: enumerate, estimate, evaluate, consider  
Antonyms: miscalculate, blunder, predetermine, misconceive

**CALAMITY**

Synonyms: adversity, misfortune, misery, mishap  
Antonyms: happiness, benefit, prosperity, fortune

**CAVITY**

Synonyms: depth, depression, hole, aperture  
Antonyms: elevation, projection, mound, height

**CEASE**

Synonyms: terminate, pause, desist, discontinue  
Antonyms: commence, continue, initiate, originate

**CIRCUMLOCUTION**

Synonyms: redundancy, verbosity, tediousness, verbiage  
Antonyms: terseness, compression, directness, brevity

**COMMOTION**

Synonyms: turmoil, disturbance, agitation, excitement  
Antonyms: tranquility, stillness, quietness, calm

**D**

**DISASTER**

Synonyms: misfortune, calamity, mishap, catastrophe  
Antonyms: prosperity, boon, happiness, auspicious

**DESPICABLE**

Synonyms: contemptible, worthless, shameless, base  
Antonyms: worthy, decent, honorable, respectable

**DISDAIN**

Synonyms: detest, despise, loathe, scorn  
Antonyms: approve, praise, love, laud

**DERIDE**

Synonyms: mock, taunt, ridicule, jeer  
Antonyms: inspire, encourage, stimulate, comfort

**DEPRIVE**

Synonyms: despoil, divest, dispossess, disinherit  
Antonyms: restore, renew, invest, endow

**DEPLORE**

Synonyms: lament, bemoan, complain, regret  
Antonyms: rejoice, cheer, applaud, celebrate

**DENOUNCE**

Synonyms: indict, condemn, censure, reprimand  
Antonyms: praise, commend, vindicate, laud

**DEMOLISH**

Synonyms: ruin, devastate, dismantle, raze  
Antonyms: repair, construct, create, erect

**DELUSION**

Synonyms: deception, hallucination, illusion, fallacy  
Antonyms: reality, certainty, veracity, fact

**DELICIOUS**

Synonyms: palatable, tasteful, appetizing, dainty  
Antonyms: distasteful, unsavory, tolerable, inedible

**DELMERATE**

Synonyms: ponder, intentional, meditate, consider  
Antonyms: rash, sudden, indifferent, random

**DEGRADATION**

Synonyms: disgrace, dishonor, humiliation, debase  
Antonyms: exaltation, praise, triumphant, honour

**DEFRAY**

Synonyms: meet, bear, spend, pay  
Antonyms: declaim, decline, refuse, abjure

**DEFILE**

Synonyms: contaminate, pollute, profane, desecrate  
Antonyms: purify, sanctity, cleanse, disinfect

**DEFICIENT**

Synonyms: scanty, inadequate, lacking, wanting  
Antonyms: adequate, ample, sufficient, abundant

**DEFER**

Synonyms: prolong, suspend, postpone, delay  
Antonyms: accelerate, expedite, stimulate, hasten

**DEFAULT**

Synonyms: failure, omission, negligence, lapse  
Antonyms: perfection, vigilance, attentive, observance

**DEDICATE**

Synonyms: devote, consecrate, loyal, surrender  
Antonyms: refuse, prohibit, reject

**DECIPHER**

Synonyms: interpret, reveal, decode, transcribe  
Antonyms: misinterpret, distort, confuse, pervert

**DECEIT**

Synonyms: deception, artifice, treachery, duplicity  
Antonyms: veracity, sincerity, truth, honesty

**DECAY**

Synonyms: collapse, decomposition, deteriorate, putrefaction  
Antonyms: flourish, progress, growth, development

**DAUNT**

Synonyms: discourage, frighten, agitate, intimidate  
Antonyms: encourage, animate, embolden, inspire

**DAINTY**

Synonyms: elegant, delicate, refined, exquisite  
Antonyms: clumsy, coarse, unpleasant, insipid

**E**

**EXULT**

Synonyms: brag, rejoice, applaud, triumph

Antonyms: deplore, lament, bemoan, grieve

**EXPLICIT**

Synonyms: definite, intelligible, obvious, apparent  
Antonyms: hidden, vague, doubtful, implicit

**EXEMPT**

Synonyms: release, excuse, exclude, absolve  
Antonyms: confine, hold, retard, enforce

**EXALT**

Synonyms: extol, dignify, glorify, elevate  
Antonyms: dishonor, disgrace, degrade, denounce

**EVIDENT**

Synonyms: obvious, apparent, distinct, conspicuous  
Antonyms: obscure, concealed, hidden, invisible

**EVADE**

Synonyms: avoid, elude, dodge, shun  
Antonyms: acknowledge, confront, verify, confirm

**ETERNAL**

Synonyms: perpetual, endless, imperishable, immortal  
Antonyms: temporary, momentary, transient, fleeting

**ESTEEM**

Synonyms: respect, regards, honour, reverence  
Antonyms: ridicule, spurn, despise, humiliate

**ERADICATE**

Synonyms: destroy, exterminate, abolish, remove  
Antonyms: secure, plant, restore, revive

**EQUIVOCAL**

Synonyms: uncertain, hazy, ambiguous, vague  
Antonyms: obvious, lucid, clear, plain

**EPITOME**

Synonyms: precise, example, miniature, summary  
Antonyms: increment, expansion, lengthen, enlargement

**ENORMOUS**

Synonyms: colossal, mammoth, immense, spacious  
Antonyms: insignificant, diminutive, trivial, negligible

**ENLIGHTEN**

Synonyms: elucidate, educate, illumine, inculcate  
Antonyms: ignorance, distortion, delude, obscure

**ENJOIN**

Synonyms: direct, counsel, exhort, command  
Antonyms: prohibit, forbid, revolt, dissuade

**ENDURANCE**

Synonyms: submission, forbearance, tolerance, patience  
Antonyms: break down, despair, volatile, agitating

**ENDOWMENT**

*Synonyms:* grant, benefit, bequest, gift

*Antonyms:* drawback, damage, loss, disinherit

**ENDEAVOUR**

*Synonyms:* undertake, aspire, venture, struggle

*Antonyms:* cease, quit, shun, idle

**ENCUMBRANCE**

*Synonyms:* hindrance, obstacle, burden, impediment

*Antonyms:* incentive, stimulant, patronize, vantage

**ENCROACH**

*Synonyms:* infringe, intrude, trespass, violate

*Antonyms:* avoid, evade, shun, abide

**EMBRACE**

*Synonyms:* cling, hug, adopt, caress

*Antonyms:* reject, neglect, shun, slight

**EMBEZZLE**

*Synonyms:* forge, swindle, defraud, peculate

*Antonyms:* redeem, retribute, reimburse, compensate

**ELUCIDATE**

*Synonyms:* enlighten, clarify, expound, illustrate

*Antonyms:* equivocate, confuse, distort, confound

**ELOQUENCE**

*Synonyms:* expression, fluency, peroration, oration

*Antonyms:* halting, stammering, indistinct, inarticulate

**ELIMINATE**

*Synonyms:* expel, oust, exclude, remove

*Antonyms:* restore, accept, retain, include

**ELEVATE**

*Synonyms:* dignify, heighten, promote, raise

*Antonyms:* deprecate, denounce, lower, decline

**ELEGANT**

*Synonyms:* graceful, distinguished, refined, polished

*Antonyms:* obnoxious, unrefined, ridiculous, coarse

**ELATION**

*Synonyms:* joy, exaltation, delight, enthusiasm

*Antonyms:* gloom, despair, depression, melancholy

**EFFACE**

*Synonyms:* destroy, obliterate, annihilate, abolish

*Antonyms:* retain, maintain, regenerate, resurrect

**ECSTASY**

*Synonyms:* delight, exultation, overjoyed, rapture

*Antonyms:* despair, calamity, doldrums, depression

**ECCENTRIC**

*Synonyms:* strange, abnormal, cranky, odd

*Antonyms:* natural, conventional, uniform, methodical

**EARNEST**

*Synonyms:* ardent, sincere, resolute, determined

*Antonyms:* unheeding, frivolous, negligent, careless

**EVASION**

*Synonyms:* prevaricate, avoid, neglect, pretext

*Antonyms:* response, defense, compliance, action

**F**

**FABRICATE**

*Synonyms:* construct, produce, manipulate, build

*Antonyms:* destroy, dismantle, wreck, demolish

**FRUGALITY**

*Synonyms:* economical, providence, thrift, parsimony

*Antonyms:* lavishness, extravagance, prodigality, improvidence

**FRIVOLOUS**

*Synonyms:* petty, worthless, capricious, volatile

*Antonyms:* solemn, significant, essential, pertinent

**FRANTIC**

*Synonyms:* violent, agitated, frenzied, wild

*Antonyms:* subdued, gentle, lucid, coherent

**FRANCHISE**

*Synonyms:* suffrage, right, privilege, patronize

*Antonyms:* bondage, oppression, serfdom, irresolute

**FRAGMENTS**

*Synonyms:* scraps, residue, segment, section

*Antonyms:* total, entire, gross, aggregate

**FRAGILE**

*Synonyms:* weak, infirm, brittle, frail

*Antonyms:* enduring, tough, robust, tenacious

**FORSAKE**

*Synonyms:* desert, renounce, relinquish, disown

*Antonyms:* hold, maintain, retain, claim

**FORMIDABLE**

*Synonyms:* dangerous, invincible, redoubtable, dreadful

*Antonyms:* harmless, insignificant, weak, feeble

**FORERUNNER**

*Synonyms:* precursor, predecessor, ancestor, pioneer

*Antonyms:* descendant, follower, heir, successor

**FOE**

*Synonyms:* 'opponent, antagonist, adversary, contender

*Antonyms:* comrade, helper, friend, fellow

**FLUENT**

*Synonyms:* fast, smooth, voluble, glib

*Antonyms:* hesitant, slow, sluggish, halting

**FALTER**

Synonyms: fluctuate, demur, dither, waver

Antonyms: persist, endure, stable, unerring

**FALLACY**

Synonyms: delusion, mistake, deception, illusion

Antonyms: veracity, truth, honesty, certainty

**FACSIMITE**

Synonyms: miniature, reproduction, copy, replica

Antonyms: distinction, dissimilarity, novelty, originality

**FABULOUS**

Synonyms: legendry, amazing, remarkable, marvelous

Antonyms: historical, common, mediocre, substantial

**FACILE**

Synonyms: dexterous, quick, skilful, effortless

Antonyms: clumsy, slow, laborious, arduous

**G**

**GUILE**

Synonyms: cunning, deceit, duplicity, chicanery

Antonyms: honesty, frankness, sincerity, integrity

**GRUDGE**

Synonyms: hatred, aversion, unveiling, objection

Antonyms: benevolence, affection, goodwill, kindness

**GRISLY**

Synonyms: disgusting, atrocious, monstrous, loathsome

Antonyms: pleasing, attractive, beautiful, alluring

**GRACIOUS**

Synonyms: courteous, beneficent, magnificent, dignified

Antonyms: rude, unforgiving, discourteous, uncouthly

**GORGEOUS**

Synonyms: magnificent, dazzling, brilliant, grand

Antonyms: dull, unpretentious, modest, plain

**GLUT**

Synonyms: stuff, satiate, overflow, cram

Antonyms: reduce, abstain, moderate, restrain

**GLOOM**

Synonyms: obscurity, darkness, dejection, disillusion

Antonyms: delight, mirth, joviality, bright

**GIGANTIC**

Synonyms: huge, enormous, immense, monstrous

Antonyms: small, diminutive, miniature, slight

**GENUINE**

Synonyms: real, authentic, creative, original

Antonyms: deceptive, spurious, imitative, derivative

**GENIAL**

Synonyms: cheerful, pleasant, joyful, affable

Antonyms: sullen, dismal, morose, melancholy

**GENEROUS**

Synonyms: liberal, unselfish, benevolent, hospitable

Antonyms: miserly, stingy, covetous, greedy

**GARRULOUS**

Synonyms: loquacious, talkative, communicative, informative

Antonyms: reserved, quiet, taciturn, reticent

**GALLANT**

Synonyms: heroic, intrepid, valorous, chivalrous

Antonyms: coward, timid, craven, base

**GAUDY**

Synonyms: garish, brilliant, glittering, tawdry

Antonyms: faded, dull, sober, solemn

**H**

**HUSTLE**

Synonyms: hurry, haste, bustle, activity

Antonyms: lull, quiet, idle, motionless

**HYPOCRISY**

Synonyms: deception, affectation, trickery, illusion

Antonyms: sincerity, integrity, honesty, ingenuousness

**HIDEOUS**

Synonyms: frightful, shocking, abominable, monstrous

Antonyms: attractive, alluring, splendid, appealing

**HERETIC,**

Synonyms: nonconformist, secularist, dissident, offender

Antonyms: conformable, adaptable, religious, believer

**HAZARD**

Synonyms: presumption, danger, peril, risk, presume

Antonyms: conviction, security, assurance, certainty

**HAUGHTY**

Synonyms: arrogant, pompous, obstinate, imperious

Antonyms: humble, submissive, modest, inoffensive

**HARASS**

Synonyms: irritable, molest, suppress, tyranny

Antonyms: assist, comfort, tolerant, connive

**HAPLESS**

Synonyms: unfortunate, ill-fated, hostile, doomed

Antonyms: fortunate, lucky, favored, satisfied

**HAPHAZARD**

Synonyms: random, sudden, unsorted, reckless

Antonyms: deliberate, considered, thoughtful, discerning

**HAMPER**

Synonyms: retard, prevent, hinder, obstruct

Antonyms: promote, facilitate, foster, assist

**HAGGARD**

Synonyms: exhausted, lean, emaciated, gaunt

Antonyms: exuberant, active, lively, robust

**HOMELY**

Synonyms: plain, coarse, unadorned, simple

Antonyms: suave, polished, dignified, refined

**HAIL**

Synonyms: greet, welcome, acclaim, honour

Antonyms: disregard, belittle, avoid, despise

**HEINOUS**

Synonyms: outrageous, vile, awful, wicked

Antonyms: righteous, pleasing, exquisite, appealing

**I**

**IRREPRESSIBLE**

Synonyms: irresistible, unconfined, unhindered, unshackled

Antonyms: composed, hesitant, submissive, grave

**INVINCIBLE**

Synonyms: unconquerable, impregnable, un-subdued, unbeatable

Antonyms: effeminate, languid, crippled, fragile

**INTIMIDATE**

Synonyms: frighten, dictate, hopeless, irresolute

Antonyms: console, encourage, appease, hearten

**INTREPID**

Synonyms: brave, courageous, valorous, chivalrous

Antonyms: scared, frightened, timid, cowardly

**INTRICATE**

Synonyms: tangled, complicated, formidable, arduous

Antonyms: regulated, orderly, manageable, ductile

**INTRIGUE**

Synonyms: scheme, conspiracy, manipulation, counterplot

Antonyms: candor, sincerity, bluntness, honesty

**INTRINSIC**

Synonyms: genuine, fundamental, inherent, congenital

Antonyms: extraneous, incidental, extrinsic, derived

**INVECTIVE**

Synonyms: accusation, censure, malediction, denunciation

Antonyms: approval, acclamation, admiration, approbation

**INSTIL**

Synonyms: inculcate, inject, infuse, implant

Antonyms: eradicate, extract, eliminate, expel

**INSOLVENT**

Synonyms: indigent, destitute, bankrupt, defaulter

Antonyms: wealthy, solvent, affluent, substantial

**INSIPID**

Synonyms: tasteless, vapid, savorless, unflavored

Antonyms: delicious, luscious, pungent, piquant

**INSINUATE**

Synonyms: communicate, allude, hint, suggest

Antonyms: conceal, camouflage, suppress, mask

**INQUISITIVE**

Synonyms: inquiring, curious, searching, studious

Antonyms: distracted, negligent, indifferent, impassive

**INNOCUOUS**

Synonyms: salutary, wholesome, innocent, harmless

Antonyms: deleterious, baneful, insanitary, injurious

**INGENUOUS**

Synonyms: undisguised, naive, candid, guileless

Antonyms: wily, crafty, perfidious, treacherous

**INFRINGE**

Synonyms: violate, encroach, transgress, trespass

Antonyms: comply, concur, conform, observe

**INEVITABLE**

Synonyms: unavoidable, ascertained, imminent, substantial

Antonyms: unlikely, doubtful, indefinite, uncertain

**INGENIOUS**

Synonyms: deft, proficient, dexterous, adroit

Antonyms: unskilled, incompetent, immature, unqualified

**INDULGE**

Synonyms: gratify, pamper, comfort, satisfy

Antonyms: annoy, trouble, torment, displease

**INDOLENT**

Synonyms: lazy, listless, languid, sluggish

Antonyms: energetic, vivacious, prompt, agile

**INDISPENSABLE**

Synonyms: essential, expedient, requisite, unavoidable

Antonyms: superfluous, redundant, needless, tranquility

**INDIGNATION**

Synonyms: resentment, ire, wrath, rage

Antonyms: modesty, tranquility, forbearance, equanimity

**INDIGENCE**

Synonyms: privation, destitution, insolvency, penury

Antonyms: affluence, abundance, opulence, luxury

**INCONGRUOUS**

Synonyms: inappropriate, absurd, ridiculous, awkward

Antonyms: compatible, harmonious, homogeneous, consistent

**INCOMPETENT**

Synonyms: inefficient, unskilled, immature, unqualified

Antonyms: dexterous, skilled, ingenious, competent

**INCLINATION**

Synonyms: disposition, affection, proneness, propensity

Antonyms: neutrality, indifference, apathy, unresponsive

**INCITE**

Synonyms: instigate, provoke, motivate, arouse

Antonyms: deter, discourage, restrain, dissuade

**INCENTIVE**

Synonyms: motivation, allurement, inducement, spur

Antonyms: dissuasion, reluctance, deterrent, discouragement

**IMPUTE**

Synonyms: attribute, ascribe, charge, indict

Antonyms: exculpate, support, vindicate, excuse

**IMPUDENCE**

Synonyms: sauciness, impertinence, insolence, arrogance

Antonyms: submissiveness, modesty, humility, meekness

**IMPIOUS**

Synonyms: irreligious, unholy, irreverent, hypocritical

Antonyms: pious, devout, spiritual, venerate

**IMPETUOUS**

Synonyms: violent, impulsive, imprudence, indiscretion

Antonyms: considerate, composed, discretion, prudence

**MPEDIMENT**

Synonyms: hurdle, obstruction, hindrance, retardation

Antonyms: assistance, concurrence, deliverance, aid

**IMPARTIAL**

Synonyms: just, unbiased, equitable, evenhanded

Antonyms: prejudiced, biased, unjust, inequitable

**IMPART**

Synonyms: divulge, bestow, inform, convey

Antonyms: withhold, conceal, suppress, deny

**IMPAIR**

Synonyms: diminish, deteriorate, decompose, worsen

Antonyms: restore, revive, resurrect, repair

**IMMUNITY**

Synonyms: prerogative, privilege, exemption, non-liability

Antonyms: blame, censure, prescript ion, interdiction

**IMMINENT**

Synonyms: impending, brewing, overhanging, approaching

Antonyms: distant, receding, retreating, withdrawing

**IMMERSE**

Synonyms: submerge, involve, descend, drown

Antonyms: emerge, uncover, restore, recover

**IMMENSE**

Synonyms: huge, enormous, gigantic, colossal

Antonyms: puny, insignificant, paltry, trifling

**IMMACULATE**

Synonyms: unsullied, spotless, untarnished, untainted

Antonyms: defiled, tarnished, obscene, profane

**IMBECILE**

Synonyms: weak, senile, feeble, unsound

Antonyms: sane, sagacious, astute, wise

**IMAGINARY**

Synonyms: illusory, visionary, insubstantial, subjective

Antonyms: factual, tangible, genuine, evident

**IGNORANCE**

Synonyms: illiteracy, darkness, unawareness, unconsciousness

Antonyms: knowledge, enlightenment, apprehension, recognition

**IGNOMINIOUS**

Synonyms: disgraceful, shameful, dishonorable, scandalous

Antonyms: dignified, distinguished, creditable, stately

**J**

**JUVENILE**

Synonyms: young, tender, youthful, adolescent

Antonyms: dotage, antiquated, senile, old

**JUSTIFY**

Synonyms: defend, exculpate, warrant, vindicate

Antonyms: impute, arraigned, accuse, incriminate

**JUST**

Synonyms: honest, impartial, righteous, upright

Antonyms: unequal, unfair, discriminatory, unseasonable

**JUDICIOUS**

Synonyms: thoughtful, prudent, discerning, discriminating

Antonyms: irrational, foolish, misconception, fatuous

**JUBILANT**

Synonyms: rejoicing, triumphant, gay, cheerful

Antonyms: melancholy, depressing, gloomy, despondent

**JOVIAL**

Synonyms: frolicsome, cheerful, merry, exultant

Antonyms: solemn, morose, malcontent, sad

**JADED**

Synonyms: tired, exhausted, fatigued, languish

Antonyms: renewal, recreation, restorative, refreshed

**JEJUNE**

Synonyms: dull, boring, uninteresting, monotonous

Antonyms: interesting, exciting, piquant, thrilling

**K**

**KINDRED**

Synonyms: relation, species, relative, affinity

Antonyms: unrelated, dissimilar, heterogeneous, disparate

**KEEN**

Synonyms: sharp, poignant, eager, acute

Antonyms: vapid, insipid, blunt, un-desiring

**KNAVE**

Synonyms: dishonest, scoundrel, vagabond, rogue

Antonyms: paragon, innocent, benefactor, idealist

**KNELL**

Synonyms: death knell, last blow, demolish, suppress

Antonyms: reconstruction, rediscovery, procreation, resurrection

**KNOTTY**

Synonyms: complicated, difficult, arduous, onerous

Antonyms: simple, manageable, tractable, flexible

**L**

**LUXURIANT**

Synonyms: profuse, abundant, dense, plentiful

Antonyms: scanty, meagre, inadequate, deficient

**LUSCIOUS**

Synonyms: palatable, delicious, delectable, delightful

Antonyms: unsavory, tart, sharp, sour

**LURE**

Synonyms: attract, entice, tempt, induce

Antonyms: repel, dissuade, confute, threaten

**LUNACY**

Synonyms: delusion, insanity, madness, imbecility

Antonyms: normalcy, sanity, sagacity, shrewdness

**LUDICROUS**

Synonyms: absurd, bizarre, preposterous, grotesque

Antonyms: balanced, congruous, consistent, solemn

**LUCID**

Synonyms: sound, rational, coherent, sane

Antonyms: obscure, hidden, incomprehensible, unintelligible

**LISTLESS**

Synonyms: lazy, inattentive, spiritless, incurious

Antonyms: brisk, attentive, diligent, agile

**LINGER**

Synonyms: loiter, prolong, hesitate, delay

Antonyms: hasten, quicken, dart, hurry

**LIBERATE**

Synonyms: emancipate, rescue, unshackle, absolve

Antonyms: suppress, menace, obstruct, detain

**LIBERAL**

Synonyms: magnanimous, hospitality, generous, benevolence

Antonyms: stingy, niggardly, malevolent, malicious

**LIABLE**

Synonyms: accountable, bound, responsible, likely

Antonyms: unaccountable, apt to, irresponsible, exempt

**LENIENT**

Synonyms: compassionate, merciful, moderate, tolerant

Antonyms: cruel, severe, violent, vehement

**LAX**

Synonyms: slack, careless, negligence, indifferent

Antonyms: firm, reliable, meticulous, scrupulous

**LAVISH**

Synonyms: abundant, excessive, profuse, extravagant

Antonyms: scarce, deficient, frugal, conserve

**LASSITUDE**

Synonyms: languor, tiredness, weariness, lethargy

Antonyms: vivacity, agility, animate, lively

**LAUDABLE**

Synonyms: deserving, honorable, praiseworthy, acceptable

Antonyms: vicious, blame worthy, venomous, condemnable

**LANGUID**

Synonyms: pensive, lethargic, exhausted, fatigued

Antonyms: lively, animated, refreshed, restored

**LAMENT**

Synonyms: grieve, deplore, regret, bemoan

Antonyms: amuse, entertain, enliven, solace

**LAG**

Synonyms: retard, falter, linger, dawdle

Antonyms: quicken, accelerate, expedite, spurt

**LACONIC**

Synonyms: brief, condensed, concise, compact

Antonyms: dilated, profuse, diffuse, wordy

**M**

**MUTUAL**

Synonyms: joint, identical, collective, reciprocal

Antonyms: separate, distinct, divergent, individual

**MUTINOUS**

Synonyms: recalcitrant, insurgent, unruly, revolutionary

Antonyms: submissive, faithful, compliant, loyal

**MURKY**

Synonyms: dusky, dreary, dismal, bleak

Antonyms: bright, shining, luminous, radiant

**MUNIFICENT**

Synonyms: liberal, hospitable, benevolent, kind

Antonyms: frugal, penurious, moderate, economical

**MULTITUDE**

Synonyms: crowd, throng, mass, swarm

Antonyms: minority, handful, paucity, scarcity

**MOROSE**

Synonyms: surly, sulky, sullen, depressed

Antonyms: sprightly, animated, buoyant, blithe

**MONOTONOUS**

Synonyms: irksome, tedious, humdrum, insipid

Antonyms: varied, pleasant, appealing, captivating

**MOMENTOUS**

Synonyms: notable, eventful, consequential, stirring

Antonyms: trivial, insignificant, commonplace, immaterial

**MOLLIFY**

Synonyms: appease, assuage, relieve, mitigate

Antonyms: irritate, infuriate, aggravate, exasperate

**MOLEST**

Synonyms: pester, harass, vex, misbehave

Antonyms: console, soothe, comfort, cheer

**MODEST**

Synonyms: reserved, unpretentious, humble, courteous

Antonyms: audacious, arrogant, pompous, vain

**MODERATE**

Synonyms: limited, reasonable, lenient, temperate

Antonyms: excessive, extravagant, violent, vehement

**MITIGATE**

Synonyms: alleviate, relieve, lessen, assuage

Antonyms: augment, enhance, intensify, aggravate

**MIRACULOUS**

Synonyms: marvelous, extraordinary, astounding, amazing

Antonyms: ordinary, trivial, familiar, natural

**MINUTE**

Synonyms: diminutive, miniature, small, microscopic

Antonyms: large, colossal, stupendous, immense

**METTLE**

Synonyms: courage, determination, stamina, spirit

Antonyms: timidity, fear, cowardice, diffident

**MERITORIOUS**

Synonyms: commendable, admirable, deserving, praiseworthy

Antonyms: unworthy, infamous, disreputable, culpable

**MERCURIAL**

Synonyms: variable, changeable, unstable, erratic

Antonyms: stable, constant, steady, steadfast

**MENDACITY**

Synonyms: falsehood, deception, perjury, perfidious

Antonyms: probity, honesty, veracity, candor

**MELODIOUS**

Synonyms: dulcet, musical, harmonious, sweet

Antonyms: grating, dissonant, discordant, rancor

**N**

**NUMEROUS**

Synonyms: profuse, various, multitude, plenteous

Antonyms: scarce, deficient, paucity, sparse

**NULLIFY**

Synonyms: cancel, annul, obliterate, invalidate

Antonyms: confirm, uphold, empower, endorse

**NOXIOUS**

Synonyms: baneful, injurious, pernicious, disastrous

Antonyms: healing, profitable, innocuous, salubrious

**NOVICE**

Synonyms: tyro, beginner, debutant, apprentice

Antonyms: veteran, ingenious, experienced, mentor

**NOURISH**

Synonyms: sustain, nurture, tend, foster

Antonyms: exhaust, starve, weaken, enervate

**NONCHALANT**

Synonyms: indifferent, negligent, uncaring, heedless

Antonyms: attentive, considerate, vigilant, scrupulous

**NIMBLE**

Synonyms: prompt, brisk, lively, agile

Antonyms: sluggish, languid, weary, tardy

**NIGGARDLY**

Synonyms: miserly, covetous, inadequacy, deficiency

Antonyms: generous, profuse, redundant, excessive

**NEGLIGENT**

Synonyms: inattentive, careless, heedless, perfunctory

Antonyms: vigilant, careful, considerate, alert

**NEFARIOUS**

Synonyms: detestable, atrocious, heinous, unlawful

Antonyms: commendable, worthy, upright, inoffensive

**NAUSEOUS**

Synonyms: unsavory, loathsome, abominable, repellent

Antonyms: commendable, worthy, benevolent, inoffensive

**NATIVE**

Synonyms: original, vernacular, indigenous, aboriginal

Antonyms: alien, extraneous, exotic, foreign

**NASTY**

Synonyms: offensive, defiled, malevolent, malignant

Antonyms: pleasing, gratifying, benevolent, attractive

**NOMINAL**

Synonyms: trifling, insubstantial, bare, negligible

Antonyms: substantial, considerable, excessive, exorbitant

**O**

**OVERWROUGHT**

Synonyms: excited, agitated, fervent, intense

Antonyms: quiet, tranquil, composed, cool

**OVERWHELM**

Synonyms: triumph, subjugate, overpower, vanquish

Antonyms: flounder, falter, restore, impotent

**OVERSIGHT**

Synonyms: omission, error, fault, slip

Antonyms: precision, observance, circumspection, caution

**OVERBEARING**

Synonyms: oppressive, domineering, intimidating, despotic

Antonyms: submissive, humble, lenient, forbearing

**OUTRAGE**

Synonyms: offence, maltreatment, assault, irreverent

Antonyms: praise, favour, esteem, reverence

**OUTBREAK**

Synonyms: eruption, insurrection, explosion, outburst

Antonyms: compliance, subjection, passivity, harmony

**OSTENTATION**

Synonyms: display, pretension, vaunt, pomposity

Antonyms: modesty, constraint, diffidence, economy

**OSTENSIBLE**

Synonyms: apparent, evident, obvious, overt

Antonyms: concealed, covert, obscure, vague

**ORNAMENTAL**

Synonyms: decorative, adorned, glamorous, picturesque

Antonyms: unseemly, plain, blemished, disfigured

**ORDAIN**

Synonyms: order, impose, prescribe, proclaim

Antonyms: revoke, abolish, violate, abrogate

**ORACULAR**

Synonyms: cryptic, vague, enigmatic, profound

Antonyms: lucid, distinct, intelligible, unambiguous

**OPAQUE**

Synonyms: filmy, dim, obscure, shady

Antonyms: transparent, bright, translucent, revealing

**ONEROUS**

Synonyms: arduous, troublesome, inconvenient, formidable

Antonyms: facile, agreeable, uncomplicated, flexible

**OMINOUS**

Synonyms: threatening, inauspicious, forebode, menacing

Antonyms: consoling, auspicious, propitious, comforting

**OFFSPRING**

Synonyms: descendants, Siblings, posterity, progeny

Antonyms: ancestors, forefathers, pedigree, progenitors

**OFFENSIVE**

Synonyms: abhorrent, arrogant, insolent, impudent

Antonyms: docile, compliant, courteous, captivating

**ODIOUS**

Synonyms: abhorrent, obnoxious, prejudice, malevolent

Antonyms: engaging, fascinating, endearing, captivating

**OCCULT**

Synonyms: latent, ambiguous, esoteric, elusive

Antonyms: intelligible, transparent, fathomable, securable

**OBVIOUS**

Synonyms: evident, apparent, distinct, conspicuous

Antonyms: obscure, ambiguous, indiscernible, confusing

**OBSTRUCT**

Synonyms: impede, prevent, restrain, retard

Antonyms: hasten, encourage, expedite, promote

**OBSTINATE**

Synonyms: stubborn, resolute, unyielding, obdurate

Antonyms: submissive, obedient, amenable, pliable

**OBSOLETE**

Synonyms: outworn, archaic, antiquated, obsolescent

Antonyms: modern, novel, vogue, contemporary

**OBSEQUIOUS**

Synonyms: slavish, servile, sycophantic, subservient

Antonyms: insolent, arrogant, defiant, assertive

**OBNOXIOUS**

Synonyms: pernicious, detestable, abhorrent, offensive

Antonyms: attractive, gratifying, beneficial, desirable

**OBJECTIVE**

Synonyms: goal, purpose, intention, resolve

Antonyms: origin, inception, deviating, subjective

**P**

**PUNGENT**

Synonyms: acute, penetrating, sharp, strong

Antonyms: mild, soothing, pleasant, palatable

**PUERILE**

Synonyms: shallow, immature, childish, trivial

Antonyms: wise, farsighted, profound, sensible

**PRUDENT**

Synonyms: cautious, discreet, judicious, circumspect

Antonyms: impetuous, unwise, reckless, rash

**PROVOKE**

Synonyms: inflame, incite, agitate, aggravate

Antonyms: pacify, comfort, dissuade, placate

**PROTRACT**

Synonyms: prolong, delay, stretch, procrastinate

Antonyms: abbreviate, curtail, abridge, compress

**PROSCRIBE**

Synonyms: prohibit, exclude, ban, forbid

Antonyms: solicit, include, permit, sanction

**PROPTIATE**

Synonyms: appease, soothe, pacify, placate

Antonyms: aggravate, annoy, scorn, displease

**PROMULGATE**

Synonyms: declare, proclaim, notify, announce

Antonyms: reserve, suppress, disguise, withhold

**PROMISCUOUS**

Synonyms: confused, indiscriminate, casual, random

Antonyms: regular, discriminate, orderly, select

**PROFUSE**

Synonyms: lavish, abundant, generous, plentiful

Antonyms: scarce, scanty, meagre, paucity

**PROFLIGATE**

Synonyms: dissolute, degenerate, immoral, flagitious

Antonyms: virtuous, upright, moral, ethical

**PRODIGY**

Synonyms: miracle, marvel, wonder, extraordinary

Antonyms: normal, average, mediocre, common

**PRODIGIOUS**

Synonyms: vast, enormous, immense, huge

Antonyms: unimpressive, diminutive, slight, puny

**PRESUMPTUOUS**

Synonyms: presuming, arrogant, affected, insolent

Antonyms: unassuming, modest, bashful, unobtrusive

**PREMATURE**

Synonyms: precious, untimely, mistimed, inopportune

Antonyms: belated, opportune, timely, mellow

**PREDICAMENT**

Synonyms: plight, dilemma, fix, quandary

Antonyms: resolution, confidence, firmness, certainty

**PRECARIOUS**

Synonyms: doubtful, insecure, unreliable, uncertain

Antonyms: assured, undeniable, reliable, substantial

**POMPOUS**

Synonyms: haughty, arrogant, flamboyant, florid

Antonyms: unpretentious, humble, coy, modest

**POISE**

Synonyms: equanimity, composure, equilibrium, patience

Antonyms: excitement, vehemence, frenzy, outburst

**PLIGHT**

Synonyms: predicament, perplexity, adversity, difficulty

Antonyms: facility, confidence, certainty, assurance

**PLIANT**

Synonyms: docile, amenable, pliable, submissive

Antonyms: defiant, adamant, rigid, obdurate

**PIQUE**

Synonyms: offence, resentment, indignation, displeasure

Antonyms: joy, rejoice, gratification, pleasure

**PIQUANT**

Synonyms: interesting, charming, tasteful, exciting

Antonyms: insipid, nauseating, unpalatable, unsavory

**PILLAGE**

Synonyms: ransack, ravage, despoil, plunder

Antonyms: recompense, recover, redeem, restoration

**PERVERSE**

Synonyms: petulant, obstinate, stubborn, unyielding

Antonyms: complacent, docile, willing, consenting

**PERTNESS**

Synonyms: flippancy, impudence, impertinence, petulance

Antonyms: modesty, diffidence, subservient, obedient

**PERSPICUITY**

Synonyms: transparency, discernment, lucidity, intelligibility

Antonyms: perplexity, intricacy, obscurity, vagueness

**PERSEVERANCE**

Synonyms: persistence, endurance, tenacity, steadfastness

Antonyms: indolence, lethargy, stupor, sloth

**PERSECUTE**

Synonyms: torment, harass, intimidate, domineer

Antonyms: recompense, redress, comfort, console

**PERPLEX**

Synonyms: puzzle, confound, frustrate, baffle

Antonyms: convince, ascertain, confident, assure

**PERPETUAL**

Synonyms: uninterrupted, lasting, perennial, incessant

Antonyms: passing, transient, ephemeral, fleeting

**PERIL**

Synonyms: hazard, danger, jeopardy, compulsory

Antonyms: caution, security, safety, assurance

**PEREMPTORY**

Synonyms: overbearing, absolute, arbitrary, compulsory

Antonyms: tolerant, indecisive, optional, indulgent

**PENETRATE**

Synonyms: pierce, perforate, insert, infiltrate

Antonyms: discharge, leak, seep, emerge

**PEEVISH**

Synonyms: perverse, sullen, irritable, fretful

Antonyms: suave, amiable, polite, pleasant

**PEERLESS**

Synonyms: matchless, unrivalled, unique, surpassing

Antonyms: mediocre, commonplace, inferior, imperfect

**PARAMOUNT**

Synonyms: foremost, eminent, supreme, unrivalled

Antonyms: trivial, inferior, subsidiary, ordinary

**PANIC**

Synonyms: apprehension, dismay, alarm, dread

Antonyms: calm, confidence, security, tranquility

**PAMPER**

Synonyms: spoil, indulge, flatter, please

Antonyms: chasten, correct, deny, disparage

**PALPABLE**

Synonyms: distinct, prominent, plain, concrete

Antonyms: concealed, obscure, intangible, covert

**PALLIATE**

Synonyms: extenuate, moderate, alleviate, soften

Antonyms: denounce, condemn, reproach, reprehend

**PLACID**

Synonyms: tranquil, calm, compose, unruffled

Antonyms: turbulent, hostile, agitated, volatile

**Q**

**QUESTIONABLE**

Synonyms: uncertain, disputable, dubious, unverifiable

Antonyms: positive, authentic, reliable, substantial

**QUELL**

Synonyms: subdue, reduce, suppress, extinguish

Antonyms: exacerbate, agitate, foment, instigate

**QUAINT**

Synonyms: queer, strange, odd, ridiculous

Antonyms: familiar, usual, common, normal

**QUACK**

Synonyms: impostor, deceiver, dissembler, knave

Antonyms: upright, unfeigned, trained, genuine

**QUIBBLE**

Synonyms: equivocate, prevaricate, evade, dissemble

Antonyms: unfeigned, plain, scrupulous, conscientious

**QUASH**

Synonyms: abrogate, annul, cancel, revoke

Antonyms: uphold, empower, authorize, permit

**QUARANTINE**

Synonyms: isolate, separate, seclude, screened

Antonyms: gregarious, amiable, sociable, companionable

**R**

**RUFHLESS**

Synonyms: remorseless, inhuman, savage, unrelenting

Antonyms: compassionate, lenient, benevolent, humanitarian

**RUSTIC**

Synonyms: pastoral, bucolic, rural, uncivilized

Antonyms: cultured, refined, urban, urbane

**ROUT**

Synonyms: defeat, overthrow, vanquish, subjugate

Antonyms: succumb, withdraw, retreat, consolidate

**RIGHTEOUS**

Synonyms: virtuous, honest, upright, just

Antonyms: unjust, immortal, unprincipled, unfair

**REVERENCE**

Synonyms: respect, esteem, regards, veneration

Antonyms: disrespect, dishonor, affront, offence

**REVEAL**

Synonyms: disclose, expose, unfold, divulge

Antonyms: hide, conceal, confine, cover

**RETRACT**

Synonyms: recant, repudiate, revoke, withdraw

Antonyms: confirm, assert, declare, affirm

**REMOTE**

Synonyms: inaccessible, farther, distant, slight

Antonyms: adjoining, adjacent, proximate, contiguous

**REMORSE**

Synonyms: regret, penitence, deplore, lament

Antonyms: ruthless, obduracy, pitiless, relentless

**RESENTMENT**

Synonyms: displeasure, wrath, ire, bitterness

Antonyms: content, cheer, pleasure, agreement

**RESCIND**

Synonyms: annul, abrogate, revoke, repeal

Antonyms: delegate, permit, authorize, propose

**REPULSIVE**

Synonyms: repellent, forbidding, hideous, detestable

Antonyms: agreeable, enticing, attractive, alluring

**REPUGNANT**

Synonyms: hostile, offensive, disagreeable, distasteful

Antonyms: agreeable, pleasant, friendly, tasteful

**REMONSTRATE**

Synonyms: censure, protest, argue, expostulate

Antonyms: , agree, laud, endorse, commend

**REMNANT**

Synonyms: residue, piece, part, remainder

Antonyms: entire, whole, complete, unbroken

**RELINQUISH**

Synonyms: forsake, abandon, surrender, abdicate

Antonyms: persist, continue, occupy, hold

**REDRESS**

Synonyms: relief, restoration, remedy, repair

Antonyms: retribution, forfeiture, harm, degenerate

**REDEEM**

Synonyms: recover, liberate, fulfil, rescue

Antonyms: lose, barter, neglect, conserve

**RAZE**

Synonyms: demolish, destroy, annihilate, dismantle

Antonyms: restore, connect, repair, build

**RAVISH**

Synonyms: captivate, enchant, seize, charm

Antonyms: disgust, annoy, displease, oppress

**RAVAGE**

Synonyms: devastate, destroy, min, despoil

Antonyms: restore, organize, reconstruct, renovate

**RATIFY**

Synonyms: consent, approve, endorse, corroborate

Antonyms: deny, contradict, dissent, oppose

**RAPTURE**

Synonyms: bliss, delight, pleasure, ecstasy

Antonyms: melancholy, distress, sorrow, agonize

**RAPID**

Synonyms: swift, fast, speedy, accelerate

Antonyms: sluggish, lethargic, languid, listless

**RANCOUR**

Synonyms: hatred, malice, resentment, bitterness

Antonyms: love, regards, respect, friendliness

**RADIANCE**

Synonyms: glow, brilliance, splendor, gleaming

Antonyms: dullness, shady, overcast, dusky

**S**

**SYCOPHANT**

Synonyms: parasite, flatterer, cringing, servile

Antonyms: devoted, loyal, truthful, faithful

**SWAY**

Synonyms: influence, control, command, power

Antonyms: impotence, futility, disability, incapacity

**SUPERFLUOUS**

Synonyms: excessive, surplus, redundant, unnecessary

Antonyms: scanty, inadequate, dearth, scarce

**SUPERFICIAL**

Synonyms: partial, shallow, cursory, flimsy

Antonyms: profound, discerning, substantial, deep

**SUBVERT**

Synonyms: overthrow, suppress, demolish, sabotage

Antonyms: accomplish, sustain, generate, organise

**SUBSTANTIAL**

Synonyms: durable, lasting, concrete, tangible

Antonyms: tenuous, abstract, fragile, immaterial

**SUBSEQUENT**

Synonyms: consequent, following, later, afterwards

Antonyms: preceding, previous, prior, earlier

**STUPOR**

Synonyms: lethargy, insensibility, unconsciousness, coma

Antonyms: consciousness, sensibility, sensitive, feeling

**STERN**

Synonyms: harsh, severe, austere, rigorous

Antonyms: lenient, considerate, benevolent, generous

**STAIN**

Synonyms: blemish, tarnish, disgrace, stigma

Antonyms: honour, purify, virtuous, noble

**STABLE**

Synonyms: abiding, lasting, steadfast, constant

Antonyms: erratic, wavering, unsteady, restless

**SQUALID**

Synonyms: dirty, soiled, filthy, odious

Antonyms: attractive, tidy, polished, spruce

**SPURIOUS**

Synonyms: counterfeit, adulterated, fake, fraudulent

Antonyms: genuine, positive, original, sincere

**SPORADIC**

Synonyms: intermittent, scattered, isolated, infrequent

Antonyms: incessant, frequent, constant, regular

**SPONTANEOUS**

Synonyms: unforced, instinctive, sudden, unintentional

Antonyms: intended, devised, premeditated, intentional

**SOLICIT**

Synonyms: entreat, implore, approach, accost

Antonyms: protest, oppose, prohibit, disapprove

**SNEER**

Synonyms: mock, scorn, despise, spurn

Antonyms: flatter, praise, encourage, laud

**SLANDER**

Synonyms: defame, malign, detract, despise

Antonyms: applaud, approve, commend, exalt

**SINISTER**

Synonyms: woeful, disastrous evil, ruinous

Antonyms: auspicious, fortunate propitious, harmless

**SHREWD**

Synonyms: running, observant, crafty, artful

Antonyms: thoughtless, rash, simple, imbecile

**SHALLOW**

Synonyms: trivial, slight, superficial, insubstantial

Antonyms: profound, wise, substantial, deep

**SHABBY**

Synonyms: miserable, impoverished, deteriorated, impaired

Antonyms: prosperous, thriving, restoring, flourishing

**SCANTY**

Synonyms: scarce, insufficient paucity, sparseness

Antonyms: lavish, luxuriant, multitude, several

**SCANDAL**

Synonyms: disgrace, disrepute, indignity, defamation

Antonyms: praise, admiration, flattery, adulation

**SAUCY**

Synonyms: impudent, insolent, brazen, impertinent

Antonyms: modest, humble, esteem, meek

**SARCASTIC**

Synonyms: derisive, ironical, sardonic, invective

Antonyms: courteous, complaisant, gracious, polite

**SANGUINE**

Synonyms: hopeful, optimistic, buoyant, confident  
Antonyms: despondent, pessimistic, depressed, despairing

**SALUTARY**

Synonyms: wholesome, salubrious, healthful, beneficial  
Antonyms: harmful, deleterious, pernicious, ruinous

**T**

**TYRO**

Synonyms: beginner, learner, novice, debutant  
Antonyms: proficient, veteran, adept, connoisseur

**TUMULTUOUS**

Synonyms: uproarious, violent, disorderly, riotous  
Antonyms: peaceful, passive, orderly, harmonious

**TRIVIAL**

Synonyms: trifling, insignificant, frivolous, worthless  
Antonyms: significant, important, consequential, essential

**TRITE**

Synonyms: ordinary, commonplace, stale, hackneyed  
Antonyms: interesting, extraordinary, becoming, proper

**TRENCHANT**

Synonyms: assertive, forceful, sharp, spirited  
Antonyms: feeble, ambiguous, shallow, vacillating

**TREACHEROUS**

Synonyms: faithless, deceitful, disloyal, unreliable  
Antonyms: faithful, reliable, dependable, trustworthy

**TRANSIENT**

Synonyms: temporal, transitory, fleeting, passing  
Antonyms: lasting, enduring, perpetual, immortal

**TRANQUIL**

Synonyms: peaceful, composed, calm, placid  
Antonyms: violent, furious, restless, distracting

**TORTURE**

Synonyms: torment, agony pang, oppress  
Antonyms: comfort, consolation, pleasure, delight

**TIMID**

Synonyms: modest, humble, diffident, apprehensive  
Antonyms: bold, intrepid, undaunted, courageous

**THRONG**

Synonyms: assembly, gathering, congregation, crowd  
Antonyms: dispersion, scattering, handful, sparsity

**TENACIOUS**

Synonyms: resolved, resolute, determined, dogged

Antonyms: vacillating, timid, wavering, unstable

**TEMPERATE**

Synonyms: cool, moderate, reasonable, lenient  
Antonyms: boisterous, vehement, violent, excessive

**TEMERITY**

Synonyms: boldness, audacity, imprudence, indiscretion  
Antonyms: discretion, prudence, caution, wisdom

**TEDIOUS**

Synonyms: wearisome, irksome, tiring, monotonous  
Antonyms: exhilarating, lively, delightful, diverting

**TAINED**

Synonyms: contaminated, corrupt, vitiated, polluted  
Antonyms: unblemished, wholesome, restorative, pure

**TACITURN**

Synonyms: reserved, uncommunicative, silent, reticent  
Antonyms: talkative, loquacious, garrulous, extrovert

**TABOO**

Synonyms: prohibit, prevent, forbid, ban  
Antonyms: permit, sanction, consent, license

**U**

**UTTERLY**

Synonyms: completely, entirely, extremely, wholly  
Antonyms: deficient, incomplete, insufficient, partial

**USURP**

Synonyms: seize, wrest, encroach, coup  
Antonyms: restore, compensate, grant, reinstate

**UNSEEMLY**

Synonyms: undesirable, inappropriate, uncouth, awkward  
Antonyms: becoming, acceptable, decorous, admirable

**UNGAINLY**

Synonyms: clumsy, unskilled, immature, slovenly  
Antonyms: active, expert, skilful, dexterous

**UNCOUTH**

Synonyms: awkward, ungraceful, inelegant, vulgar  
Antonyms: elegant, graceful, distinguished, shapely

**UMBRAE**

Synonyms: resentment, bitterness, dissatisfaction, offence  
Antonyms: sympathy, goodwill, amity, esteem

**V**

**VULGAR**

Synonyms: inelegant, offensive, nasty, ungraceful

Antonyms: refined, graceful, elegant, civil

**VOUCH**

Synonyms: confirm, consent, approve, endorse

Antonyms: repudiate, prohibit, recant, retract

**VOLATILE**

Synonyms: light, changing, transient, temporal

Antonyms: heavy, ponderous, perpetual, stable

**VIGILANT**

Synonyms: cautious, alert, wary, circumspect

Antonyms: careless, negligent, inattentive, casual

**VICIOUS**

Synonyms: corrupt, obnoxious, degraded, demoralized

Antonyms: noble, virtuous, innocent, undefiled

**VIBRATE**

Synonyms: swing, oscillate, fluctuate, undulate

Antonyms: cease, pause, rest, discontinue

**VENOM**

Synonyms: poison, resentment, malevolence, rancor

Antonyms: antidote, remedy, benevolent, sympathetic

**VENERABLE**

Synonyms: esteemed, honored, respectable, worthy

Antonyms: unworthy, immature, degrade, degenerate

**VANITY**

Synonyms: conceit, pretension, immodesty, pride

Antonyms: modesty, humility, meek, bashful

**VALOUR**

Synonyms: bravery, prowess, heroism, chivalry

Antonyms: fear, cowardice, unmanliness

**VALID**

Synonyms: sound, authentic, genuine, reliable

Antonyms: fallacious, deceptive, dubious, uncertain

**VALIANT**

Synonyms: brave, gallant, courageous, chivalrous

Antonyms: fearful, afraid, coward, dastardly

**VAGRANT**

Synonyms: idle, roaming, wanderer, roving

Antonyms: steady, settled, stationary, stable

**W**

**WAIVE**

Synonyms: relinquish, remove, abjure, renounce

Antonyms: impose, clamp, grasp, retain

**WARY**

Synonyms: cautious, circumspect, prudent, chary

Antonyms: heedless, negligent, impulsive, reckless

**WICKED**

Synonyms: immoral, dissolute, vicious, nefarious

Antonyms: virtuous, ethical, innocent, noble

**WITHHOLD**

Synonyms: reserve, restrain, hamper, retard

Antonyms: emancipate, liberate, dispense, release

**WANE**

Synonyms: decline, dwindle, decrease, deteriorate

Antonyms: ameliorate, rise, revive, wax

**WAYWARD**

Synonyms: volatile, capricious, unstable, inconstant

Antonyms: stable, determined, resolute, straight

**WILT**

Synonyms: wither, perish, deteriorate, smother

Antonyms: revive, bloom, refresh, restore

**WIELD**

Synonyms: use, exercise, exert, employ

Antonyms: abstain, avoid, forbear, forgo

**WAN**

Synonyms: pale, fade, discolor, feeble

Antonyms: bright, healthy, colourful, gaudy

**WILFUL**

Synonyms: stubborn, obstinate, obdurate, inexorable

Antonyms: amenable, irresolute, pliable, yielding

**Y**

**YOKE**

Synonyms: connect, harness, hitch, shackle

Antonyms: liberate, release, detach, disconnect

**YIELD**

Synonyms: surrender, abdicate, succumb, consent

Antonyms: resist, protest, prohibit, forbid

**YELL**

Synonyms: shout, shriek, exclaim, gesticulate

Antonyms: suppress, whisper, muffled, muted

**YEARN**

Synonyms: languish, crave, require, pine

Antonyms: content, unwanted, satisfied, gratified

**YAWN**

Synonyms: gape, sleepy, slumber, doze

Antonyms: close, active, brisk, wakeful

**Z**

**ZIGZAG**

Synonyms: oblique, crooked, winding, wayward

Antonyms: straight, even, direct, unbent

**ZEST**

Synonyms: delight, enthusiasm, various, energetic

Antonyms: disgust, passive, detriment, languid

**ZENITH**

Synonyms: summit, apex, maximum, pinnacle

Antonyms: nadir, base, bottom, floor

**ZEALOT**

Synonyms: fanatic, partisan, bigot, chauvinist

Antonyms: tolerant, liberal, blasphemy, impious

**ZEAL**

Synonyms: eagerness, fervour, enthusiasm, ardour

Antonyms: apathy, lethargy, indifference, reluctant

Questions based on Synonyms and antonyms have following formats –

**FORMAT I** : In each of the following questions a word is given in capital letters followed by four alternative words marked a-d. Select from the alternatives **the word nearest in meaning** to the word given in capital letters.

**Illustration :**

Q.1 ESCALATE

- (a) retard (b) step-up (c) hamper (d) opposes

Ans. **(b)**

Q.2 LETHAL

- (a) sharp (b) brutal (c) deadly (d) sickly

Ans. **(c)**

**FORMAT II** : In each of the following questions a word is given in capital letters followed by four alternative words marked a-d. Select from the alternatives **the word most nearly opposite in meaning** to the word given in capital letters.

**Illustration :**

Q.1 SANCTITY

- (a) sacred (b) sophisticated (c) unlawfulness (d) eagerness

Ans. **(c)**

Q.2 CONSISTENCY

- (a) stability (b) harmony (c) defective (d) inconsistency

Ans. **(d)**

**FORMAT III** : In each of the following questions, there are three words which are meanings of a certain word. Select that word from the answer choices provided in each question.

**Illustration :**

Q.1 Imagination, mind, feelings

- (a) thoughts (b) grip (c) help (d) know

Ans. **(a)**

Q.2 practical, sensible, realistic

- (a) logical (b) materialistic (c) reasonable (d) creative

Ans. **(c)**

**FORMAT IV :** Select from the alternatives the word that conveys the same meaning as the bold word in the sentences.

**Illustration :**

Q.1 Fatigue would make him **passive**  
(a) sick (b) weak (c) irritating (d) submissive

Ans. **(d)**

Q.2 She is quite **oblivious** of the crowd.  
(a) nervous (b) unaware (c) familiar (d) irritated

Ans. **(b)**

**FORMAT V : Finding word pair relationship**

In these types of questions, four words are given as question of which two words are nearly the same or opposite in meaning. One is required to find the two words that are nearly the same or opposite in meaning and indicate the number of the correct letter combination provided in the options.

**Illustration :**

Q.1 (A) high, (B) tide, (C) low, (D) drown  
(a) A-B (b) B-C (c) A-C (d) C-D

Ans. **(c) high – low**, words have opposite meaning.

Q.2 (A) proximate, (B) elevated, (C) nimble, (D) agile  
(a) A-B (b) B-C (c) A-C (d) C-D

Ans. **(d) nimble – agile**, both has nearly same meaning i.e., able to move quickly.

## PRACTICE EXERCISE

### CONCEPT ENHANCER 1

In each of the following questions, a word is given in capital letters followed by four alternative words marked a-d. Select from the alternatives the word nearest in meaning to the word given in capital letters :

1. NOSTALGIA  
(a) aroma (b) sea sickness  
(c) home sickness (d) cure-all
2. OMNIPOTENT  
(a) all knowing (b) all powerful  
(c) everlasting (d) all merciful
3. OSTENSIBLY  
(a) actually (b) conspicuously  
(c) apparently (d) quietly
4. PENITENCE  
(a) retribution (b) submission  
(c) confinement (d) repentance
5. SAVOURING  
(a) eating (b) enjoying  
(c) liking (d) loving

6. UNANIMOUSLY  
(a) friendly (b) forcefully  
(c) unquestionably (d) democratically
7. RIVAL  
(a) friend (b) partner  
(c) associate (d) opponent
8. LATENT  
(a) hard (b) concealed  
(c) visible (d) display
9. VENERATE  
(a) defame (b) abuse  
(c) respect (d) accuse
10. CONCEALED  
(a) disclosed (b) open  
(c) camouflaged (d) released
11. AMICABLE  
(a) poisonous (b) friendly  
(c) satisfying (d) heartening
12. BRUTAL  
(a) humane (b) adamant  
(c) ruthless (d) criminal

- |   |                   |                   |                 |                  |
|---|-------------------|-------------------|-----------------|------------------|
| 13. CANDID  | (a) sweet         | (b) pleasing      | (c) frank       | (d) dishonest    |
| 14. BOISTEROUS  | (a) boiling       | (b) hot           | (c) noisy       | (d) dangerous    |
| 15. ACUMEN  | (a) beauty        | (b) appearance    | (c) insight     | (d) distaste     |
| 16. PRUDENT   | (a) skilled       | (b) experienced   | (c) cautious    | (d) criminal     |
| 17. TETE-A-TETE   | (a) delightful    | (b) penetrating   | (c) piercing    | (d) conversation |
| 18. IMPOSTER  | (a) imposer       | (b) lazy          | (c) cheat       | (d) painful      |
| 19. INCITE  | (a) discourage    | (b) encourage     | (c) internal    | (d) crime        |
| 20. ZENITH  | (a) sharp         | (b) bright        | (c) bravery     | (d) climax       |
| 21. ACCOMPLICE  | (a) friend        | (b) abetter       | (c) criminal    | (d) thief        |
| 22. BIASED  | (a) careful       | (b) partial       | (c) expert      | (d) unskilled    |
| 23. INTENSIFY   | (a) boiling       | (b) satisfy       | (c) aggravate   | (d) destroyed    |
| 24. REPULSIVE   | (a) frustrating   | (b) repellent     | (c) admirable   | (d) pleasant     |
| 25. PROHIBIT  | (a) banish        | (b) punish        | (c) forbid      | (d) exhibit      |
| <b>CONCEPT ENHANCER 2</b>   |                   |                   |                 |                  |
| <p><b>In each of the following questions, a word is given in capital letters followed by four alternative words marked a-d. Select from the alternatives the word that is opposite in meaning to the word given in capitals :</b></p> |                   |                   |                 |                  |
| 1. DESOLATE   | (a) abandon       | (b) dislocate     | (c) cheerful    | (d) accelerate   |
| 2. EXONERATE  | (a) implicate     | (b) turn out      | (c) desperate   | (d) punish       |
| 3. RIDICULOUS   | (a) dangerous     | (b) reasonable    | (c) hazardous   | (d) poisoner     |
| 4. IMPLICATE  | (a) involve       | (b) exonerate     | (c) corrupt     | (d) accuse       |
| 5. FALLACIOUS   | (a) true          | (b) faulty        | (c) wrong       | (d) dirty        |
| 6. VINDICTIVE   | (a) praise        | (b) forgiving     | (c) useless     | (d) piercing     |
| 7. ENDURE   | (a) sensor        | (b) censor        | (c) discontinue | (d) continue     |
| 8. TRANQUIL   | (a) peaceful      | (b) disturbed     | (c) painful     | (d) punishing    |
| 9. MEAGRE   | (a) villager      | (b) ample         | (c) danger      | (d) simple       |
| 10. BLUSTERING  | (a) calm          | (b) dangerous     | (c) boiling     | (d) risky        |
| 11. AMIABLE   | (a) friendly      | (b) not agreeable | (c) agreeable   | (d) amicable     |
| 12. APPEASE   | (a) sympathize    | (b) irritate      | (c) peaceful    | (d) apart        |
| 13. BIZARRE   | (a) costly        | (b) attractive    | (c) normal      | (d) abnormal     |
| 14. BENEVOLENCE   | (a) kindness      | (b) humanely      | (c) inhumanely  | (d) malice       |
| 15. BIASED  | (a) disinterested | (b) distasteful   | (c) cured       | (d) curved       |
| 16. RELUCTANT   | (a) inclined      | (b) worried       | (c) willing     | (d) ready        |
| 17. CONDEMN   | (a) avoid         | (b) worship       | (c) hate        | (d) underrate    |
| 18. SEGREGATE   | (a) abolish       | (b) confuse       | (c) compile     | (d) darken       |

- |                  |                  |                   |                 |                   |
|------------------|------------------|-------------------|-----------------|-------------------|
| 19. AUDACIOUS    | (a) manifest     | (b) obvious       | (c) secretly    | (d) carefully     |
|                  | (c) venture      | (d) cowardly      | 36. FALSE       | (a) inaccurate    |
| 20. AFFLUENT     | (a) talkative    | (b) poor          | (c) true        | (b) incorrect     |
|                  | (c) prosperous   | (d) close         | 37. AGGRESSIVE  | (d) defective     |
| 21. EXTRAVAGANT  | (a) expensive    | (b) thrifty       | (a) assertive   | (b) proud         |
|                  | (c) unlimited    | (d) proud         | (c) timid       | (d) confident     |
| 22. ELOQUENT     | (a) inarticulate | (b) clear         | 38. LIBERAL     | (a) tolerant      |
|                  | (c) lucid        | (d) coherent      | (c) progressive | (b) educated      |
| 23. IMPRECISION  | (a) accuracy     | (b) wrong         | 39. SCARCE      | (d) miser         |
|                  | (c) mistake      | (d) erroneousness | (a) thick       | (b) enlarge       |
| 24. STRENGTHEN   | (a) introduce    | (b) debilitate    | (c) plentiful   | (d) mediocrity    |
|                  | (c) conclude     | (d) fortify       | 40. MOISTURE    | (a) dryness       |
| 25. MAGNIFY      | (a) produce      | (b) support       | (c) dampness    | (b) delicate      |
|                  | (c) reduce       | (d) destroy       | 41. CITE        | (d) defect        |
| 26. DISASTROUS   | (a) constructive | (b) demolish      | (a) good        | (b) conceal       |
|                  | (c) positive     | (d) none          | (c) sight       | (d) place         |
| 27. SLUGGISHNESS | (a) keenness     | (b) simplicity    | 42. RELUCTANT   | (a) agreeable     |
|                  | (c) promptness   | (d) boldness      | (c) curious     | (b) enthusiastic  |
| 28. EXTERIOR     | (a) inward       | (b) interior      | 43. CALM        | (d) unwilling     |
|                  | (c) inner        | (d) internal      | (a) relaxed     | (b) easy          |
| 29. DULL         | (a) clever       | (b) coloured      | (c) cosy        | (d) uncomfortable |
|                  | (c) bright       | (d) youthful      | 44. EXTINCT     | (a) useless       |
| 30. SAGE         | (a) snob         | (b) egoist        | (c) obscure     | (b) irrelevant    |
|                  | (c) rogue        | (d) fool          | 45. SIGNIFICANT | (d) unimportant   |
| 31. MASK         | (a) hit          | (b) expose        | (a) distinct    | (b) extreme       |
|                  | (c) injure       | (d) deface        | (c) alive       | (d) unimportant   |
| 32. GENUINE      | (a) correction   | (b) germinate     | 46. APPLAUD     | (a) request       |
|                  | (c) chaste       | (d) fake          | (c) pray        | (b) criticize     |
| 33. IRRELEVANT   | (a) relevant     | (b) illegible     | 47. ABUNDANT    | (d) flatter       |
|                  | (c) immature     | (d) not connected | (a) long        | (b) heavy         |
| 34. UGLY         | (a) evil         | (b) good looking  | (c) minute      | (d) excessive     |
|                  | (c) fearful      | (d) hateful       | 48. THRIVE      | (a) survive       |
| 35. CAUTIOUSLY   | (a) carelessly   | (b) genuinely     | (c) entertain   | (b) revive        |
|                  |                  |                   | 49. ECONOMISE   | (d) deteriorate   |
|                  |                  |                   | (a) reduce      | (b) save          |
|                  |                  |                   | (c) minimise    | (d) expensive     |
|                  |                  |                   | 50. DOUBT       | (a) ignorance     |
|                  |                  |                   | (c) mistake     | (b) dullness      |
|                  |                  |                   |                 | (d) belief        |

**CONCEPT ENHANCER 3**

In each of the following questions, there are three words which are meanings of a certain word. Select that word from the answer choices provided in each question :

1. glare, glower, scowl  
(a) auger (b) frown  
(c) argument (d) decide
2. yield, cede, defer  
(a) succeed (b) combine  
(c) succumb (d) create
3. zest, enthusiasm, keenness  
(a) system (b) substitute  
(c) passion (d) revitalize
4. heavy, serious, profound  
(a) nervous (b) deep  
(c) penetrate (d) grounded
5. bribe, inducement, carrot  
(a) sweetener (b) saltiness  
(c) somber (d) almond
6. imitate, duplicate, replicate  
(a) copy (b) deviate  
(c) fax (d) send
7. migrate, travel, drift  
(a) spread (b) roam  
(c) dictate (d) rule
8. pavement, roadway, concrete  
(a) street (b) beach  
(c) park (d) border
9. series, sequence, chain  
(a) cage (b) string  
(c) field (d) style
10. compound, mix, complex  
(a) analog (b) amalgam  
(c) juices (d) interest
11. adverse, unfavorable, unhelpful  
(a) necessary (b) mandatory  
(c) fruitful (d) unhelpful
12. balance, equilibrium, steadiness  
(a) typical (b) weight  
(c) stability (d) measure
13. freedom, liberty, sovereignty  
(a) choice (b) type  
(c) guess (d) answer
14. ultimatum, taunt, provocation  
(a) metal (b) string  
(c) challenge (d) deliberation
15. lenient, compassionate, moderate  
(a) relaxes (b) perplexed

- (c) prejudice (d) mortal
16. immerse, dip, dunk  
(a) drunk (b) frank  
(c) imbibe (d) submerge
17. haste, hurry, promptness  
(a) speed (b) worry  
(c) carelessness (d) immediate
18. extemporaneous, impromptu, unrehearsed  
(a) constant (b) conditional  
(c) exact (d) spontaneous
19. taint, blot, defile  
(a) corrupt (b) stigma  
(c) dried (d) foul smell
20. witness, observer, onlooker  
(a) spectator (b) present  
(c) biased (d) careful
21. decline, refuse, repudiate  
(a) reject (b) climb  
(c) eject (d) inject
22. boisterous, clamorous, vociferous  
(a) clumsy (b) dangerous  
(c) loud (d) quiet
23. approve, confirm, sanction  
(a) accept (b) endorse  
(c) incorporate (d) conforming
24. deceased, defunct, extinct  
(a) lifeless (b) living  
(c) stout (d) infect
25. cheer, encourage, warm  
(a) fame (b) defame  
(c) courageous (d) exhilarate

**CONCEPT ENHANCER 4**

Select from the alternatives the word that conveys the same meaning as the italicized word in the sentences.

1. The reporter made a *verbatim* report of the Prime Minister's address.  
(a) frank (b) clear  
(c) unchanged (d) correct
2. Another theory *postulates* that the yogic treatment relaxes the mind and body  
(a) highlights  
(b) to assume to be true  
(c) makes doubtful  
(d) discard
3. Sanjay has a *propensity* for getting into debt.  
(a) liking (b) aptitude  
(c) will (d) natural tendency

4. The Bosnian forces had no artillery and was completely *annihilated*.  
(a) disarmed (b) tired of fighting  
(c) destroyed (d) inefficient
5. No one welcomes him to a party for he is so *garrulous*.  
(a) behaves indecently (b) too proud  
(c) to have ego (d) talks too much
6. *Incensed* by his rude behaviour, the employer sacked him.  
(a) excited (b) enraged  
(c) to get tired (d) due to
7. The fact threw an *odious* light on the incident.  
(a) foul smelling (b) hateful  
(c) dirty (d) open
8. Sumit's *antipathy* to Reshma did not spring from the jealousy of a frustrated husband.  
(a) affection (b) hostility  
(c) love (d) to divorce
9. Of course, she knew pretty well that there was no *innuendo* in his remark.  
(a) implication (b) sincerity  
(c) sly implication (d) frankness
10. Mr. Saxena had *circumvented* Mr. Ghosh and his driver on the way to the railway station.  
(a) to evade (b) to deceive  
(c) followed (d) to watch secretly
11. Her career is a *paradigm* of political opportunism.  
(a) result (b) signal  
(c) model (d) cause
12. He had a *profusion* of talents.  
(a) abundance (b) dearth  
(c) limitation (d) enough
13. Their diverse attitude seemed to *preclude* a long-term solution.  
(a) to quickly negotiate (b) mediate  
(c) to prevent (d) negotiate
14. It was nothing but a *ponderous* lecture.  
(a) exaggerated (b) thoughtful  
(c) unthoughtful (d) dull and laboured
15. You cannot question the Inspector's *veracity*.  
(a) efficiency (b) truthfulness  
(c) honesty (d) character
16. The new Manager could earn the confidence of his staff due to his *urbane* nature.  
(a) indifferent (b) polite  
(c) friendly (d) unfriendly
17. If you want real *solace* go to Manali.  
(a) holiday (b) consolation  
(c) happiness (d) rest
18. A *sumptuous* dinner was served after the meeting.  
(a) expensive (b) lavish  
(c) indigestible (d) very light
19. He has become a millionaire by his *devious* means.  
(a) hard work (b) dishonest  
(c) skillful (d) never ending
20. There is an *ambiguity* in the office order.  
(a) uncertainty of meaning  
(b) danger  
(c) error  
(d) mistake
21. The land was *parched* by the scorching summer heat.  
(a) sterilized (b) cleansed  
(c) to make dry (d) dry
22. People who smoke stand greater chance of getting cancer than those who *abstain*.  
(a) refuse (b) refrain  
(c) accept (d) teetotaler
23. He works for a *paltry* sum in a provision store.  
(a) huge (b) heavy  
(c) worthless (d) sufficient
24. Sunil's *vocation* is both paying and pleasant.  
(a) holidays (b) occupation  
(c) business (d) attitude
25. Her voice was perfectly *audible* even without a loudspeaker.  
(a) pleasant (b) praiseworthy  
(c) hearable (d) sweet

### CONCEPT ENHANCER 5

**Finding word pair relationship**, in each of the following questions, four words are given of which two words are nearly the same or opposite in meaning. You are required to find the two words that are nearly the same or opposite in meaning and indicate the number of the correct letter combination provided in the options.

1. (A) debility (B) strength  
(C) prosperity (D) sociability  
(a) A-C (b) A-B  
(c) B-D (d) B-C

- |   |  |  |  |
|---|--|--|--|
| 2. (A) diminutive<br>(C) large<br>(a) B-D<br>(c) A-C          | (B) intelligent<br>(D) prolific<br>(b) B-C<br>(d) A-B      | 14. (A) punishment<br>(C) confluence<br>(a) B-C<br>(c) C-D | (B) divergence<br>(D) confidence<br>(b) B-D<br>(d) A-B   |
| 3. (A) recluse<br>(C) transparent<br>(a) A-B<br>(c) A-C       | (B) pandemic<br>(D) opaque<br>(b) C-D<br>(d) A-D           | 15. (A) affected<br>(C) anxious<br>(a) B-D<br>(c) A-C      | (B) desolate<br>(D) lonely<br>(b) B-C<br>(d) A-D         |
| 4. (A) concentration<br>(C) distraction<br>(a) A-D<br>(c) A-C | (B) dissociation<br>(D) deliberation<br>(b) B-C<br>(d) C-D | 16. (A) Disruption<br>(C) affection<br>(a) B-D<br>(c) B-C  | (B) largesse<br>(D) meanness<br>(b) C-D<br>(d) A-C       |
| 5. (A) expanded<br>(C) shrunk<br>(a) A-C<br>(c) C-D           | (B) proclaimed<br>(D) facilitated<br>(b) B-D<br>(d) A-B    | 17. (A) awful<br>(C) pleasant<br>(a) A-B<br>(c) A-D        | (B) envious<br>(D) fair<br>(b) B-C<br>(d) B-D            |
| 6. (A) interminable<br>(C) endless<br>(a) A-C<br>(c) D-C      | (B) long<br>(D) interfering<br>(b) B-C<br>(d) A-B          | 18. (A) serene<br>(C) identical<br>(a) A-B<br>(c) A-D      | (B) jealous<br>(D) calm<br>(b) A-C<br>(d) B-C            |
| 7. (A) surfaced<br>(C) created<br>(a) B-A<br>(c) C-A          | (B) nurtured<br>(D) developed<br>(b) B-D<br>(d) C-D        | 19. (A) notion<br>(C) concept<br>(a) A-B<br>(c) A-C        | (B) symbol<br>(D) message<br>(b) B-C<br>(d) C-D          |
| 8. (A) cutting<br>(C) transferring<br>(a) A-B<br>(c) B-C      | (B) establishing<br>(D) pruning<br>(b) C-D<br>(d) A-D      | 20. (A) limpid<br>(C) acrid<br>(a) A-B<br>(c) C-D          | (B) luscious<br>(D) benign<br>(b) B-C<br>(d) B-D         |
| 9. (A) indelible<br>(C) insignificant<br>(a) A-C<br>(c) A-B   | (B) erasable<br>(D) temporary<br>(b) C-B<br>(d) B-D        | 21. (A) asinine<br>(C) fortunate<br>(a) A-D<br>(c) A-C     | (B) furious<br>(D) ridiculous<br>(b) A-B<br>(d) B-C      |
| 10. (A) implies<br>(C) confirms<br>(a) C-B<br>(c) B-A         | (B) leads<br>(D) connotes<br>(b) A-D<br>(d) D-C            | 22. (A) possessive<br>(C) secretive<br>(a) A-B<br>(c) B-D  | (B) dreadful<br>(D) formidable<br>(b) B-C<br>(d) A-C     |
| 11. (A) eject<br>(C) mark<br>(a) B-D<br>(c) B-C               | (B) spread<br>(D) sprout<br>(b) A-D<br>(d) A-B             | 23. (A) submissive<br>(C) uninvolved<br>(a) A-B<br>(c) B-D | (B) benevolent<br>(D) uncharitable<br>(b) B-C<br>(d) C-D |
| 12. (A) push<br>(C) flourish<br>(a) A-C<br>(c) C-D            | (B) thrive<br>(D) arrange<br>(b) A-D<br>(d) B-C            | 24. (A) asinine<br>(C) intelligent<br>(a) B-C<br>(c) A-C   | (B) profound<br>(D) cruel<br>(b) B-D<br>(d) A-B          |
| 13. (A) refuse<br>(C) lurk<br>(a) A-C<br>(c) B-D              | (B) discourage<br>(D) hide<br>(b) C-D<br>(d) B-C           | 25. (A) plunge<br>(C) grumble<br>(a) A-B<br>(c) A-D        | (B) grouch<br>(D) despite<br>(b) A-C<br>(d) B-C          |

**ACCURACY BOOSTER 1**

**Test your potential,** by selecting the most appropriate synonym of the word given.

1. We have sanctioned his leave on *compassionate* grounds.  
(a) as an exception (b) legal  
(c) merciful (d) deserving
2. Industrial Relations was his *bail wick*.  
(a) weakness  
(b) area of authority/skill  
(c) foolishness  
(d) failure
3. It was *altruism* of nations that sent relief supplies to Maharashtra.  
(a) richness (b) greatness  
(c) hypocrisy (d) unselfish concern
4. It was *magnanimity* to overlook such remarks.  
(a) weakness (b) generosity  
(c) judgment (d) greatest fault
5. His professional qualification was of *paramount* value.  
(a) advantageous (b) foremost  
(c) equal (d) little
6. REVERBERATE  
(a) reflect (b) accelerate  
(c) revitalize (d) gibberish
7. UNDAUNTED  
(a) careless (b) not discouraged  
(c) worthless (d) prudent
8. TENACIOUS  
(a) tough (b) poisonous  
(c) uncomfortable (d) piercing
9. SHREWD  
(a) naive (b) clever  
(c) raw (d) youthful
10. APPLAUD  
(a) rebuke (b) slam  
(c) praise (d) condemn
11. SERENITY  
(a) agitation (b) protest  
(c) stir (d) calmness
12. LETHAL  
(a) deadly (b) sluggish  
(c) smooth (d) unlawful
13. MALINGERING  
(a) creating ill will  
(b) feigning illness  
(c) defaming

- (d) being habitually lazy
14. position, place, location  
(a) raw (b) site  
(c) situation (d) top
15. part. section, fraction  
(a) analysis (b) money  
(c) piece (d) amount
16. identify, see, recognize  
(a) slip (b) quit  
(c) know (d) spot
17. intimate, warm, close  
(a) harm (b) come  
(c) friendly (d) break
18. material cloth stuff  
(a) room (b) textile  
(c) hide (d) strength
19. noise, sound, blare  
(a) blast (b) glare  
(c) rhythm (d) pollution
20. doubt, uncertain, undecided  
(a) knowledge (b) disbelief  
(c) Egyptian (d) strain

**ACCURACY BOOSTER 2**

**Test your potential,** by selecting the most appropriate antonym of the word given.

1. TRIUMPH  
(a) excitement (b) failure  
(c) gain (d) joy
2. OUTSTANDING  
(a) Admirable (b) frivolous  
(c) notorious (d) interesting
3. HOMELY  
(a) Rough (b) outgoing  
(c) smooth (d) beautiful
4. CRUEL  
(a) indifferent (b) dreadful  
(c) merciful (d) hateful
5. MARVELLOUS  
(a) pleasing (b) charming  
(c) attractive (d) shabby
6. TRANSIT  
(a) show (b) reply  
(c) withhold (d) televise
7. COMMUNICATE  
(a) impassive (b) animated  
(c) mobile (d) open

- |                 |                   |                   |
|-----------------|-------------------|-------------------|
| 8. STRIPED      | (a) covered       | (b) naked         |
|                 | (c) exposed       | (d) unclothed     |
| 9. REVEALED     | (a) bare          | (b) concealed     |
|                 | (c) open          | (d) naked         |
| 10. BURIED      | (a) shown         | (b) marked        |
|                 | (c) obscured      | (d) hidden        |
| 11. DISPLAY     | (a) exhibit       | (b) show          |
|                 | (c) demonstrate   | (d) conceal       |
| 12. ERROR       | (a) fallacy       | (b) impropriety   |
|                 | (c) unsuitability | (d) correctness   |
| 13. SETBACK     | (a) bonus         | (b) misfortune    |
|                 | (c) shock         | (d) upset         |
| 14. ASSIST      | (a) aid           | (b) help          |
|                 | (c) hinder        | (d) facilitate    |
| 15. PREVENT     | (a) stop          | (b) permit        |
|                 | (c) check         | (d) avoid         |
| 16. DESTRUCTION | (a) preservation  | (b) ruin          |
|                 | (c) damage        | (d) wreckage      |
| 17. SPOIL       | (a) improve       | (b) blemish       |
|                 | (c) destroy       | (d) blight        |
| 18. ENHANCE     | (a) boost         | (b) increase      |
|                 | (c) damage        | (d) advance       |
| 19. UNION       | (a) separation    | (b) combination   |
|                 | (c) merger        | (d) blending      |
| 20. PRIMITIVE   | (a) polite        | (b) naïve         |
|                 | (c) weak          | (d) sophisticated |

# CUET-UG

COMMON UNIVERSITY ENTRANCE TEST-UG

SAMPLE

# GENERAL TEST



# CONTENT

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## **Part - 1 General Mental Ability & Verbal Reasoning**

1. Alphabet Test
2. Coding Decoding
3. Series
4. Classification
5. Analogies
6. Blood Relation
7. Direction Test
8. Calendar
9. Ranking
10. Dice
11. Cube and Cuboids
12. Dictionary
13. Clock
14. Symbols & Notions

## **Part - 2 Logical Ability & Analytical Reasoning**

1. Venn diagram
2. Syllogism
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4. Data Sufficiency
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6. Logical Deductions
7. Statement & Argument
8. Statement & Assumption
9. Cause and Effect

## **Part - 3 Numerical Ability & Quantitative Reasoning**

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3. Countries, Capitals and Currencies
4. About Languages
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8. Indian States and Capital
9. National parts in India
10. Top 10 Longest River in India
11. List of waterfalls in india
12. Top 10 longest Bridges in india
13. Folk dances
14. National Symbol of india
15. National / official language in India
16. List of high courts in india
17. Largest/Smallest States/UT india
18. Wildlife Sanctuaries in india

19. Top 10 longest Highways in India
20. List of National Peace in India
21. Neighboring countries of India
22. Dams in India
23. National Animal of India
24. National tree of India
25. Union Territories of india
26. List of State Animals
27. List of State Flower
28. List of Prime Ministry of India
29. Fundamental Rights in Indian Constitution
30. List of State Birds
31. List of Indian presidents
32. Indian Constitution
33. Computer Shortcut Key
34. Sports G.K
1. Important Days and Dates
2. Latest Appointments
3. Make an India
4. International current Affairs
5. Award and Honours
6. National Affairs
7. PM Jan Dhan Yojna
8. Summite & conference
9. Sports current Affair
10. Schemer and committees
11. Books and Authors
12. Banking Current G.K
13. Latest Agreements
14. Science & Technology
15. Ganes & Sports
16. Defence News
17. Economy Latest updater
18. Latest obituaries
19. State News
20. World News

## 6. BLOOD RELATION

Problems on **Blood Relations** involves analysis of information showing blood relationship among members of a family.

In these problems, a chain of relationship is given in the form of information and based on this information, relation between any two members of the chain is asked.

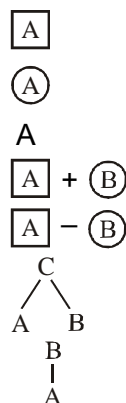
While attempting questions on the blood relations, one should be clear of all the relation patterns that can exist between any two individuals.

**Table : Knowledge of different relationship in a family**

Grand Father's Son	Father or Uncle
Grand Mother's Son	Father or Uncle
Grand Father's Only Son	Father
Grand Mother's Only Son	Father
Mother's or Father's Father	Grand Father
Mother's or Father's Mother	Grand Mother
Grand Father's Only Daughter-in-law	Mother
Grand Mother's Only Daughter-in-law	Mother
Mother's or Father's Son	Brother
Mother's or Father's Daughter	Sister
Father's Brother	Paternal Uncle
Mother's Brother	Maternal Uncle
Mother's or Father's Sister	Aunt
Husband's or Wife Sister	Sister-in-law
Husband's or Wife Brother	Brother-in-law
Son's Wife	Daughter-in-law
Daughter's Husband	Son-in-law
Brother's or Sister's Son	Nephew
Brother's or Sister's Daughter	Niece

**Construction of a family tree** : To solve problems on relationship, sometimes it is convenient to draw family tree. To draw a family tree, certain standard notations are used to indicate a relationship between the members of the family.

1. If A is male.
2. If A is female.
3. If sex of A is not known.
4. If A is male and B is female and they are couple.
5. A is male & B is female and they are Brother-Sister.
6. A and B are C's children.
7. A is the only child of B.



**General Steps for Solving Problems :** To draw a family tree from the given data, first identify the males and the females in the family and then try to put each member in their respective position in the tree.

**For example –** A, B, C, D, E, F are related to each other as -

- (i) B is F's daughter in law
- (ii) D is A's only grand child
- (iii) C is D's only uncle
- (iv) A has only 2 children F and C, one male and one female. (not necessarily in same order).
- (v) E is father of C.

And the questions are -

1. Who is Grandmother of D?
2. Who is Mother-in-law of B?
3. When a girl G is married into the family, what is the relationship between G and D?

**Solution :**

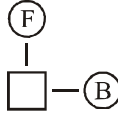
**Step-I :** From the given conditions, it can be determined who are the males/females in the above group:

- (i) B is F's daughter-in-law, so B is female ⊙ B
- (ii) C is D's only uncle, so C is male □ C
- (iii) A has two children F and C, one male & one female, since C is male so F is female ⊙ F

**Step-II :** Identify the positions of the members in the family tree. For this, determine the number of generations involved from the statements. D is A's only grandchild. Thus, there are 'three generations.

**Step-III :** The conditions to arrange A, B, C, D, E and F in the three generations are

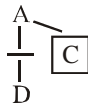
- (i) B is F's daughter-in-law



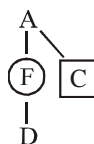
- (ii) D is A's only Grand-child



- (iii) C is D's uncle



- (iv) A has only two children F and C

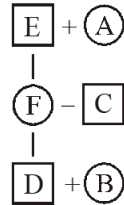


- (v) E is C's father.



**Step-IV :** Finally merge all the figures of the step-III and make a final family tree and answer the questions.

So, the final family diagram for this problem is



Hence, the answer will be

- (i) According to the family tree, A is grandmother of D.
- (ii) F is mother-in-law of B.
- (iii) C is the only person, who is unmarried. So, G will be married to C and hence C will be D's Aunt.

**Use of Symbols to Denote Relationship** : Sometimes symbols are used to represent a relationship.

**For example**, if

A + B means 'A is the mother of B'

A – B means 'A is the brother of B'

A × B means 'A is the sister of B'

A Δ B means 'A is the wife of B'

Find the relationship between A and C in the following statements :

- (a) A × B + C                      (b) A – B Δ C

**Solution :**

In the statement (a), A is the sister of B, who is the mother of C. This implies that A is the aunt of C.

In the statement (b), A is the brother of B, who is the wife of C. So, A is the brother-in-law of C.

## PRACTICE EXERCISE

**Direction (1 - 10)** : In the following questions, around about description is given in the form of certain relationship. Analyse the whole chain of relations and answer the questions accordingly.

1. Pointing to a picture of a child Narendra says, "The brother of this child's mother, is the only son of my mother's father." How is Narendra related to the mother of the child ?  
(a) Daughter                      (b) Sister  
(c) Maternal grandmother      (d) None of these
2. Pointing to a lady in the photograph Kaushal said, "She is the daughter of the daughter of the only son of my grandfather." How is the lady related to Kaushal ?  
(a) Sister                              (b) Maternal aunt  
(c) Niece                              (d) Cousin
3. A lady pointing to a man in a photograph says, "The sister of the son of this man is my mother-in-law." How is the husband of the lady related to the man in the photograph ?  
(a) Maternal grandson  
(b) Nephew
- (c) Son  
(d) Maternal grand father
4. Kamini says, "Rajeev's grandfather is the only son of my father." How is Kamini related to Rajeev ?  
(a) Daughter                      (b) Sister  
(c) Niece                              (d) Grand mother
5. A lady pointing to a woman in a photograph says, "She is the only daughter of my father-in-law." How is the woman related to the lady ?  
(a) Mother                              (b) Sister  
(c) Friend                              (d) None of these
6. Pointing to a woman in a photograph a man says, "Her mother's mother is the mother of my father." How is the man related to the woman in the photograph ?  
(a) Uncle                              (b) Maternal cousin  
(c) Nephew                              (d) Grand son
7. A and B are brothers, C and D are sisters, A's son is D's brother. How is B related to C ?  
(a) Father                              (b) Uncle  
(c) Son                                      (d) Brother

8. If M is Father of N, L is Brother of M and P is Mother of L, then what is the relation of N with P ?  
(a) Grand-Daughter (b) Grand-Son  
(c) Father (d) Data inadequate
9. Shanker is father of 'B' but 'B' is not son of Shanker then what is the relationship of 'B' to Shanker ?  
(a) Grand-daughter (b) Mother  
(c) Daughter (d) Grand Son
10. Sachin is the brother of the son of Ajit's son. Then what is the relationship of Sachin to Ajit ?  
(a) Brother (b) Cousin  
(c) Nephew (d) Grandson

**Direction (11 - 13) :** Study the following information and answer the questions given below.

There are 8 members in a family A, B, C, D, E, G, H and I. C and A are brothers. H and I are cousins and both are males. C is the son of E and D. G is the wife of C. B is the wife of A. D is the grandmother of H and I.

11. How is C related to D ?  
(a) Sister (b) Brother  
(c) Husband (d) Son
12. How is A related to G ?  
(a) Sister-in-law (b) Sister  
(c) Brother (d) Brother-in-law
13. How is H related to A ?  
(a) Father-in-law (b) Son  
(c) Brother (d) Cousin

**Directions (14 - 16) :** Study the following information and answer the questions given below.

- (i) A is the son of B.  
(ii) C, who is the sister of B has a son D and a daughter E.  
(iii) F is the maternal uncle of D.
14. How is A related to D ?  
(a) Cousin (b) Nephew  
(c) Uncle (d) Brother
15. How is E related to F ?  
(a) Sister (b) Daughter  
(c) Niece (d) Wife
16. How many nephews does F have ?  
(a) None (b) One  
(c) Two (d) Three

**Directions (17 - 20) :** Study the following information and answer the questions given below.

- (i) There are six members A, B, C, D, E and F in a family.  
(ii) There are two married couples.  
(iii) C is the wife of B and mother of F.  
(iv) D is the grandmother of A and mother of B.
17. Who among the following is one of the couples ?  
(a) C and D (b) B and E  
(c) D and E (d) A and C
18. How many male members are there in the family ?  
(a) 2  
(b) 4  
(c) 3  
(d) Cannot be determined
19. How is C related to A ?  
(a) Grandmother (b) Aunt  
(c) Mother (d) Daughter
20. Which of the following statements is true ?  
(a) A is the brother of F.  
(b) B has two daughters.  
(c) A is the sister of E.  
(d) F is the sister of A.

**Direction (21 - 26) :** The following questions are based on relationship represented by certain specific symbols. Analyse the given symbols and answer the questions accordingly.

21. (i)  $P \times Q$  means— 'P is the brother of Q'.  
(ii)  $P \div Q$  means 'P is the son of Q'.  
(iii)  $P - Q$  means 'P is the sister of Q'.  
Which of the following relations will show that Q is the maternal uncle of P ?  
(a)  $Q \times R \div P$  (b)  $Q \div R - P$   
(c)  $P \times R - Q$  (d)  $P \div R - Q$
22. (i) B5D means B is the father of D.  
(ii) B9D means B is the sister of D.  
(iii) B4D means B is the brother of D.  
(iv) B3D means B is the wife of D.  
Which of the following means F is the mother of K ?  
(a) F3M5N3K (b) F5M3K  
(c) F3M5K (d) F9M4N3K

23. (i)  $A + B$  means 'A is the daughter of B'.  
(ii)  $A * B$  means 'A is the son of B'.  
(iii)  $A - B$  is 'A is the wife of B'.  
If  $P * Q - S$ , which of the following is true ?  
(a) S is the wife of Q  
(b) S is the father of P  
(c) P is the daughter of P  
(d) Q is the father of P

24. (i)  $S \times T$  means 'S is the brother of T'.  
(ii)  $S - T$  means 'S is the mother of T'.  
(iii)  $S + T$  means 'S is the father of T'.  
Which of the following represents 'M is the son of Q' ?  
(a)  $M \times R + Q$                       (b)  $M + R \times Q$   
(c)  $M - R + Q$                       (d)  $Q + M \times R$

25. (i)  $A + B$  means 'A is the daughter of B'.  
(ii)  $A - B$  means 'A is the husband of B'.  
(iii)  $A \times B$  means 'A is the brother of B'.  
If  $P + Q - R$ , which one of the following is true ?  
(a) R is the mother of P  
(b) R is the sister-in-law of P  
(c) R is the aunt of P  
(d) R is the mother-in-law of P

26. (i)  $A \times B$  means 'A is the sister of B'.  
(ii)  $A \div B$  means 'A is the daughter of B'.  
(iii)  $A - B$  means 'A is the son of B'.  
On the basis of this information, how is P related to S in the relationship  $P - Q \times R \div S$   
(a) Brother                      (b) Son  
(c) Grandson                      (d) Daughter's son

**Direction (27 - 30) :** Read the following information based on certain specific symbols and answer the questions given below.

- (i)  $A + B$  means 'A is father of B'.  
(ii)  $A - B$  means 'A is wife of B'.  
(iii)  $A \times B$  means 'A is brother of B'.  
(iv)  $A \div B$  means 'A is daughter of B'.

27.  $P \div R + S + Q$ , which of the following is true ?  
(a) P is daughter of Q.  
(b) Q is aunt of P.  
(c) P is aunt of Q.  
(d) P is mother of Q.
28. If  $P - R + Q$ , which of the following is true ?  
(a) P is mother of Q.  
(b) Q is daughter of P.  
(c) P is aunt of Q.  
(d) P is sister of Q.

29.  $P \times R \div Q$ , which of the following is true ?  
(a) P is uncle of Q.  
(b) P is father of Q.  
(c) P is brother of Q.  
(d) P is son of Q.
30. If  $P \times R - Q$ , which of the following is true ?  
(a) P is brother-in-law of Q.  
(b) P is brother of Q.  
(c) P is uncle of Q.  
(d) P is father of Q.

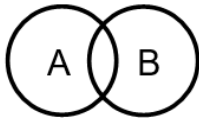
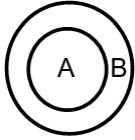
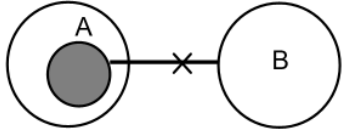
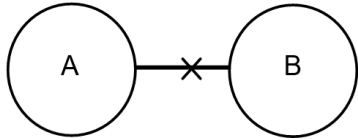
## 2. SYLLOGISM

**Syllogism** is a form of arguing in which two statements are used to prove that a third statement is true.

For example, 'All humans are mortal; I am a human, therefore I am mortal.'

The questions which are asked in this section contain two or more statements and these statements are followed by two or more conclusions. We have to find out which of the conclusions logically follow from the given statements. The statements have to be taken true even if they seem to be at variance from the commonly known facts.

To find out which of the conclusions logically follow from the given statements, these statements can be converted into Venn diagram. Generally, the given statements are one of the following four types :

Types of statements	Venn diagram
1. Some A are B	
2. All A are B	
3. Some A are not B	
4. No A are B	

**Illustration** : Two statements are given below followed by four conclusions. Find which of the following conclusions logically follow from the given statements.

**Statements** : (I) All the goats are tigers.      (II) All the tigers are lions.

**Conclusions**: (i) All the goats are lions.      (ii) All the lions are goats.  
(iii) Some lions are goats.      (iv) Some tigers are goats.

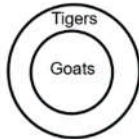
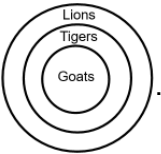
**Solution** : The Venn diagram representing "All the goats are tigers" is  and the Venn

diagram representing "All the tigers are lions" is . On combining these

diagrams, we get .

- (i) Clearly, the circle representing goats comes under the circle representing lions. So, **first conclusion follows.**
- (ii) But the circle representing lions does not come under the circle representing goats. So, **second conclusion does not follow.**
- (iii) Some part of the circle representing lions overlap with the circle representing goats. So, **third conclusion follows.**
- (iv) Similarly, some part of the circle representing tigers overlap with the circle representing goats. So, **fourth conclusion also follows.**

## PRACTICE EXERCISE

**Directions (1 - 23) :** In each of the following questions, two statements are given followed by two conclusion numbered I & II. Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts. Mark Answer

- (a) if only conclusion I follows
  - (b) if only conclusion II follows
  - (c) if either conclusion I or II follows
  - (d) if neither conclusion I nor II follows
  - (e) if both conclusions I and II follow
1. **Statements :**  
All artists are smokers. Some smokers are drunkards.  
**Conclusions :**  
I. All smokers are artists.  
II. Some drunkards are not smokers.
  2. **Statements :**  
Some adults are boys. Some boys are old.  
**Conclusions :**  
I. Some adults are not old.  
II. Some boys are not old.
  3. **Statements :**  
All windows are doors. No door is wall.  
**Conclusions :**  
I. No window is wall.  
II. No wall is door.
  4. **Statements :**  
Bureaucrats marry only intelligent girls. Tanya is very intelligent.  
**Conclusions :**  
I. Tanya will marry a bureaucrat.  
II. Tanya will not marry a bureaucrat.
  5. **Statements :**  
All fishes are grey in colour. Some fishes are heavy.  
**Conclusions :**  
I. All heavy fishes are grey in colour.

- II. All light fishes are not grey in colour.
6. **Statements :**  
Some papers are pens. Angle is a paper.  
**Conclusions :**  
I. Angle is not a pen.  
II. Angle is a pen.
  7. **Statements :**  
All lamps are books. No book is coloured.  
**Conclusions :**  
I. Some lamps are coloured.  
II. No lamp is coloured.
  8. **Statements :**  
All envelopes are umbrellas. All umbrellas are chalks.  
**Conclusions :**  
I. Some chalks are envelopes.  
II. Some umbrellas are not envelopes.
  9. **Statements :**  
All dogs are reptiles. Some cats are reptiles.  
**Conclusions :**  
I. Some dogs are cats.  
II. Some cats are not reptiles.
  10. **Statements :**  
Some books are pencils. Some pencils are pens.  
**Conclusions :**  
I. All books are pens.  
II. Some pens are books.
  11. **Statements :**  
Some men are educated. Educated persons prefer small families.  
**Conclusions :**  
I. All small families are educated.  
II. Some men prefer small families
  12. **Statements :**  
Some hens are cows. All cows are horses.  
**Conclusion :**  
I. Some horses are hens  
II. Some hens are horses

13. **Statements :**  
All the harmoniums are instruments. All the instruments are flutes.  
**Conclusions :**  
I. All the flutes are instruments.  
II. All the harmoniums are flutes.
14. **Statements :**  
Some mangoes are yellow. Some tixo are mangoes.  
**Conclusions :**  
I. Some mangoes are green.  
II. Tixo is a yellow.
15. **Statements :**  
Some ants are parrots. All the parrots are apples.  
**Conclusions :**  
I. All the apples are parrots.  
II. Some ants are apples.
16. **Statements :**  
Some papers are pens. All the pencils are pens.  
**Conclusions :**  
I. Some pens are pencils.  
II. Some pens are papers.
17. **Statements :**  
All the actors are girls. All the girls are beautiful.  
**Conclusions:**  
I. All the actors are beautiful.  
II. Some girls are actors.
18. **Statements :**  
All cups are books. All books are shirts.  
**Conclusions:**  
I. Some cups are not shirts.  
II. Some shirts are cups.
19. **Statements :**  
Some cows are crows. Some crows are elephants.  
**Conclusions :**  
I. Some cows are elephants.  
II. All crows are elephants.
20. **Statements :**  
All the pencils are pens. All the pens are inks.  
**Conclusions :**  
I. All the pencils are inks.  
II. Some inks are pencils.

21. **Statements :**  
Some dogs are bats. Some bats are cats.  
**Conclusions :**  
I. Some dogs are cats.  
II. Some cats are dogs.
22. **Statements :**  
All the trucks are flies. Some scooters are flies.  
**Conclusions :**  
I. All the trucks are scooters.  
II. Some scooters are trucks.
23. **Statements :**  
All buildings are chalks. No chalk is toffee.  
**Conclusions :**  
I. No building is toffee  
II. All chalks are buildings.
- Directions (24 - 30) :** In each of the following questions, two statements are given followed by three or four conclusions numbered I, II, III and IV. Find which of the given conclusions logically follows from the given statements disregarding commonly known facts.
24. **Statements :**  
All aeroplanes are trains. Some trains are chairs.  
**Conclusions :**  
I. Some aeroplanes are chairs.  
II. Some chairs are aeroplanes.  
III. Some chairs are trains.  
IV. Some trains are aeroplanes.  
(a) None follows.  
(b) Only I and II follow.  
(c) Only II and III follow.  
(d) Only III and IV follow.
25. **Statements :** Some bottles are drinks. All drinks are cups.  
**Conclusions :**  
I. Some bottles are cups.  
II. Some cups are drinks.  
III. All drinks are bottles.  
IV. All cups are drinks.  
(a) Only I and II follow.  
(b) Only II and III follow.  
(c) Only I and IV follow.  
(d) Only III and IV follow.

26. **Statements :** Some bags are pockets.

No pocket is a pouch.

**Conclusions :**

I. No bag is a pouch.

II. Some bags are not pouches

III. Some pockets are bags.

IV. No pocket is a bag

(a) None follows.

(b) Only I and III follow.

(c) Only II and III follow.

(d) All follow.

27. **Statements :**

No door is dog. All the dogs are cats.

**Conclusions:**

I. No door is cat.

II. No cat is door.

III. Some cats are dogs.

IV. All the cats are dogs.

(a) Only II and IV follow.

(b) Only I and III follow.

(c) Only III and IV follow.

(d) Only III follows.

28. **Statements :**

All green are blue. All blue are white.

**Conclusions:**

I. Some blue are green.

II. Some white are green.

III. Some green are not white.

IV. All white are blue.

(a) Only I and II follow.

(b) Only I and III follow.

(c) Only I and IV follow.

(d) Only II and IV follow.

29. **Statements :**

All men are vertebrates. Some mammals are vertebrates.

**Conclusions :**

I. All men are mammals.

II. All mammals are men.

III. Some vertebrates are mammals.

IV. All vertebrates are men.

(a) Only IV follows.

(b) Only II follows.

(c) Only III follows.

(d) Only I follows.

30. **Statements :**

All the phones are scales. All the scales are calculators.

**Conclusions :**

I. All the calculators are scales.

II. All the phones are calculators

III. All the scales are phones.

IV. Some calculators are phones.

(a) Only I and IV follow.

(b) Only III and IV follow.

(c) Only II and IV follow.

(d) Only I and II follow.

## 1. NUMBER SYSTEM

A **Number System** is defined as a writing system to express the number in a consistent manner. The most commonly used number system is the Hindu-Arabic number system. It is considered as a positional base 10 system. The positional value of each digit in a number is explained with the help of following place value chart.

Ten Crores	Crores	Ten Lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
$10^8$	$10^7$	$10^6$	$10^5$	$10^4$	$10^3$	$10^2$	$10^1$	$10^0$

### FACE VALUE AND PLACE VALUE (LOCAL VALUE) OF A DIGIT IN A NUMBER :

The face value of a digit in a number is its own value whereas place value is the position of each digit in a number. The place value of digits is determined as ones, tens, hundreds, thousands, ten thousands and so on, based on their position in the number.

For example : In the number 432

Face value of 4 = 4

Face value of 3 = 3

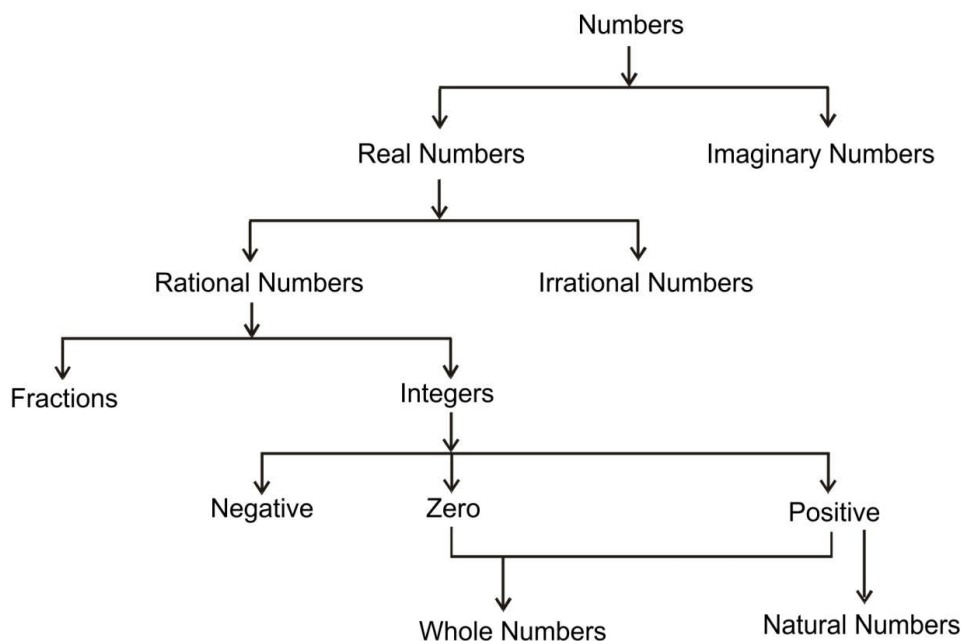
Face value of 2 = 2

Place value of 4 =  $4 \times 100 = 400$

Place value of 3 =  $3 \times 10 = 30$

Place value of 2 =  $2 \times 1 = 2$

### Classification of Numbers :



1. **Natural numbers (N) :**

Set of all counting numbers from 1 to  $+\infty$ . Thus,  $N = \{1, 2, 3, 4, \dots, \infty\}$ .

2. **Whole numbers (W) :**

Set of all natural numbers including zero. Thus,  $W = \{0, 1, 2, 3, 4, \dots\}$ .

3. **Integers (I or Z) :**

Set of all positive and negative numbers including zero.

$Z = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$ .

**Note :** Set of all non-negative integers =  $\{0, 1, 2, 3, 4, \dots\}$

4. **Even integers :**

All integers which are divisible by 2 are called even integers. Even integers are denoted by the expression  $2n$ , where  $n$  is any integer.

5. **Odd integers :**

All integers which are not divisible by 2 are called odd integers. Odd integers are denoted by the general expression  $2n - 1$ , where  $n$  is any integer.

6. **Prime numbers :**

Numbers which are not divisible by any natural number except unity and itself.

7. **Composite numbers :**

All natural numbers, which are not prime are composite numbers. A composite number is also divisible by other numbers except one and itself.

**Note :** 1 is neither prime nor composite number.

8. **Co-prime numbers or relatively prime numbers :**

If the H.C.F. of the given numbers (not necessarily prime) is 1 then they are called co-prime numbers.

Example : 4 & 9 are co-prime as H.C.F. of (4, 9) = 1

9. **Rational numbers :**

The numbers which can be expressed in the form of  $p/q$ , where  $p$  and  $q$  are integers and  $q \neq 0$ . Every rational number when expressed in decimal form is expressible either in terminating or in non-terminating repeating decimal form.

10. **Irrational numbers :**

The numbers which cannot be expressed in the form of  $p/q$ , where  $p$  and  $q$  are integers and  $q \neq 0$ . These numbers when expressed in decimal would be in non-terminating non-repeating form.

11. **Imaginary numbers :**

All the numbers whose square is negative are called imaginary numbers.

12. **Absolute value of a real number :** The absolute value or modulus of a real number  $x$  is denoted

by  $|x|$  and is defined as  $|x| = \begin{cases} x, & \text{if } x > 0 \\ -x, & \text{if } x < 0 \end{cases}$

Example :  $|-30| = 30$ ,  $|27| = 27$

**Prime Factorization :**

Prime factorization is the process of writing a number as the product of prime numbers. Prime numbers are the numbers that have only two factors, 1 and the number itself.

The simplest algorithm to find the prime factors of a number is to keep on dividing the original number by prime factors until we get the remainder equal to 1.

Example : Prime factorizing the number 30 we get,  $30/2 = 15$ ,  $15/3 = 5$ ,  $5/5 = 1$ . Since we received the remainder 1, it cannot be further factorized. Therefore,  $30 = 2 \times 3 \times 5$ , where 2, 3 and 5 are prime factors of 30.

**Euclid's Division Lemma or Euclid's Division Algorithm :**

For any two given positive integers  $a$  and  $b$ , there exist whole numbers  $q$  and  $r$  such that

$$a = bq + r, \text{ where } 0 \leq r < b$$

Here we call 'a' as dividend, 'b' as divisor, 'q' as quotient and 'r' as remainder. So,

$$\text{Dividend} = (\text{Divisor} \times \text{Quotient}) + \text{Remainder}$$

**Test of divisibility :**

No.	Divisibility Test	Examples
2	Unit's digit should be 0,2,4,6 or 8.	4096, 23548 as they end with 6 and 8.
3	The sum of digits of number should be divisible by 3.	2143251, sum of the digits is 18 which is divisible by 3.
4	The number formed by last 2 digits of given number should be divisible by 4.	61548, here the number formed by last two digits is 48 which is divisible by 4. So, 61548 is divisible by 4.
5	Unit's digit should be 0 or 5.	4095 and 235060 as they have 5, 0 at unit places.
6	Number should be divisible by 2 & 3 both.	753618, it is divisible by both 2 and 3. So, 753618 is divisible by 6.
7	Divide the number into groups of 3 digits (starting from right) and find the difference between the sum of the numbers in odd and even places. If the difference is divisible by 7, the number is divisible by 7.	8375129 → 8 / 375 / 129 375 – (129 + 8) = 238, which is divisible by 7. So, 8375129 is divisible by 7.
8	The number formed by last 3 digits of given number should be divisible by 8.	795432, here 432 is divisible by 8. So, 795432 is divisible by 8.
9	Sum of digits of given number should be divisible by 9.	125847, sum of the digits is 27 which is divisible by 9. So, 125847 is divisible by 9.
11	The difference between sum of the digits at even & at odd places should be zero or multiple of 11.	9582540, here sum of digits at odd places – sum of digits at even places = 22 – 11 = 11, which is divisible by 11. So, 9582540 is divisible by 11.
13	Divide the number into groups of 3 digits (starting from right) and find the difference between the sum of the numbers in odd and even places. If the difference is divisible by 13, the number is divisible by 13.	6382532 → 6 / 382 / 532 (532 + 6) – 382 = 156, which is divisible by 13. So, 6382532 is divisible by 13.
25	Last 2 digits of the number should be 00, 25, 50 or 75.	2500, 2550 etc.

**Formulae on sum of numbers :**

(1) Sum of first n natural numbers

$$1 + 2 + 3 + \dots + n = \sum_{n=1}^n n = \frac{n(n+1)}{2}$$

(2) Sum of square of first n natural numbers

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \sum_{n=1}^n n^2 = \frac{n(n+1)(2n+1)}{6}$$

(3) Sum of cube of first n natural numbers

$$1^3 + 2^3 + 3^3 + \dots + n^3 = \sum_{n=1}^n n^3 = \frac{n^2(n+1)^2}{4}$$

(4) Sum of first n even numbers

$$2 + 4 + 6 + \dots + 2n = \sum_{n=1}^n 2n = n(n+1)$$

(5) Sum of first n odd numbers

$$1 + 3 + 5 + \dots + (2n-1) = \sum_{n=1}^n (2n-1) = n^2$$

**Concept of unit's digit of  $x^n$  ( $x, n \in \mathbf{N}$ ) :**

Unit digit is the rightmost digit of any number. To find the unit digit of  $x^n$ , we have to first familiarize with the concept of cyclicity. Cyclicity of any number is about the last digit and how they appear in a certain defined manner. Let's take an example to clear this thing:

The cyclicity chart of 2 is:

$$2^1 = 2$$

$$2^2 = 4$$

$$2^3 = 8$$

$$2^4 = 16$$

$$2^5 = 32$$

As 2 is multiplied every-time with itself, the last digit changes. On the 4<sup>th</sup> multiplication,  $2^5$  has the same unit digit as  $2^1$ . This shows that the cyclicity of 2 is 4, that is after every fourth multiplication, the unit digit will be two.

**Cyclicity table:**

The cyclicity table for numbers is given below:

Unit's digit of number (x)	Possible unit's digit of number ( $x^n$ )	Number of possibilities (cyclicity)
0	0	1
1	1	1
2	2, 4, 8, 6	4
3	3, 9, 7, 1	4
4	4, 6	2
5	5	1
6	6	1
7	7, 9, 3, 1	4
8	8, 4, 2, 6	4
9	9, 1	2

To calculate unit's digit of the number  $x^n$ , follow the steps given below :

1. First identify the unit's digit (u) in the base 'x'.
2. Next, divide the power n with the cyclicity of u.

Now, two cases arises :

(i) If the remainder is r ( $r \neq 0$ ), the unit digit will be  $u^r$ .

(ii) If the remainder is 0, then

- The unit digit of  $x^n$  will be 6, if  $u = 2, 4, 6$  or  $8$ .
- The unit digit of  $x^n$  will be 1, if  $u = 3, 7$  or  $9$ .

**Note :** If  $u = 0, 1, 5$  or  $6$  then the unit's digit of  $x^n$  will always be 0, 1, 5 & 6 respectively.

Example : Find the unit's digit of  $287^{562581}$

Step 1 : We know that the cyclicity of 7 is 4.

Step 2 : Divide the power 562581 by 4.

Step 3 : By doing that, we get a remainder = 1

Step 4 : Since remainder is non-zero. So, unit's digit =  $7^1 = 7$

### FRACTIONS :

A fraction is used to represent the portion / part of the whole thing. It represents the equal parts of the whole. A fraction has two parts, namely numerator and denominator.

#### **Types of Fractions :**

1. **Decimal fraction** : Fraction whose denominator is 10 or any power of 10 is called decimal fraction.
2. **Proper fraction** : Fraction in which numerator is less than the denominator i.e.,  $\frac{2}{3}$  is called proper fraction.
3. **Improper fraction** : Fraction in which numerator is greater than the denominator i.e.,  $\frac{7}{4}$  is called improper fraction.
4. **Mixed fraction** : Fraction which combines whole number and fractional part i.e.,  $4\frac{3}{7}$  is called mixed fraction.
5. **Equivalent fractions** : If two fractions result in same value, after simplification, then they are called equivalent fractions.
6. **Like fractions** : Fractions having the same denominators are called like fractions.
7. **Unlike fractions** : Fractions having different denominators are called unlike fractions.

#### **Comparison of Fractions :**

To compare the given fractions, each fraction is converted into a decimal by directly dividing the numerator by the denominator. After division, the decimal value is compared.

Example :  $\frac{4}{5} = 0.8$ ,  $\frac{6}{7} = 0.857$ ,  $\frac{8}{9} = 0.888\dots$

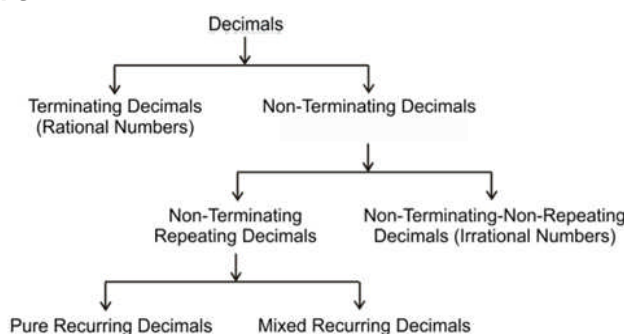
$\therefore 0.8 < 0.857 < 0.888\dots$

$\therefore \frac{4}{5} < \frac{6}{7} < \frac{8}{9}$

### DECIMALS :

Decimals are one of the types of numbers, which has a whole number and the fractional part separated by a decimal point. The dot present between the whole number and fractional part is called the decimal point. For example, 17.25 is a decimal number.

#### **Classification of Decimals :**



**1. Terminating decimals :**

Rational numbers  $\left(\frac{p}{q}\right)$  for which long division terminates after a finite number of steps are called terminating decimals.

Example :  $\frac{1}{4} = 0.25, \frac{17}{20} = 0.85$

**2. Non-terminating repeating (recurring) decimals :**

Rational numbers  $\left(\frac{p}{q}\right)$  for which the long division is non terminating but repeating are called non-terminating repeating or recurring decimals.

Example :  $\frac{2}{3} = 0.666... = 0.\overline{6}, \frac{1}{7} = 0.142857142857... = 0.\overline{142857}$

**Recurring decimals are further classified into two types :**

**1. Pure recurring decimals :**

The decimal representation in which all the digits after the decimal point repeat is called pure recurring decimals.

Example :  $0.4242... = 0.\overline{42}$

**2. Mixed recurring decimals :**

The decimal representation in which at least one digit after the decimal point does not repeat is called mixed recurring decimals.

Example :  $0.285666... = 0.285\overline{6}, 0.23737... = 0.2\overline{37}$

**Conversion into Fractions :**

**1. Converting a decimal into fraction :**

In the denominator, put 1 under the decimal point and annex with it as many zeros as is the number of digits after the decimal point. Then, remove the decimal point and reduce the fraction to the lowest terms.

Example :  $0.68 = \frac{68}{100} = \frac{17}{25}$

**2. Converting a pure recurring decimal into fraction :**

Write the repeated digits only ones in the numerator and take as many nines in the denominator as in the number of repeating digits.

Example :  $0.\overline{7} = \frac{7}{9}, 0.\overline{23} = \frac{23}{99}$

**3. Converting a mixed recurring decimal into fraction :**

In the numerator, take the difference between the number formed by all the digits after decimal point (taking repeated digits only once) and that formed by the digits which are not repeated. In the denominator, take the number formed by as many nines as there are repeating digits followed by as many zeros as is the number of non-repeating digits.

Example :  $0.2\overline{7} = \frac{27-2}{90} = \frac{25}{90} = \frac{5}{18}$   
 $0.31\overline{8} = \frac{318-3}{990} = \frac{315}{990} = \frac{7}{22}$

**ILLUSTRATIONS**

1. Given that  $1^2 + 2^2 + 3^2 + \dots + 11^2 = 506$ , then find the value of  $2^2 + 4^2 + 6^2 + \dots + 22^2$ .

Sol.  $2^2 + 4^2 + 6^2 + \dots + 22^2 = 2^2 (1^2 + 2^2 + 3^2 + \dots + 11^2) = 2^2 \times 506 = 4 \times 506 = 2024$

2. Show that 6832738 is divisible by 11.

Sol. (Sum of digits at odd places) – (Sum of digits at even places) =  $(8 + 7 + 3 + 6) - (3 + 2 + 8) = 11$ , which is divisible by 11.

Hence, 6832738 is divisible by 11.

3. If the number 2105x4 is completely divisible by 8, then the smallest integer in place of x will be:

Sol. According to the rule of divisibility by 8, a number is divisible by 8 then its last 3 digits are divisible by 8.

So, the last three digits of 2105x4 are 5x4. The smallest number in the form of 5x4, which is divisible by 8 is 504.

Hence,  $x = 0$

4. On dividing 16057 by a certain number, the quotient is 89 and the remainder is 37. Find the divisor.

Sol. Divisor =  $\frac{\text{Dividend} - \text{Remainder}}{\text{Quotient}}$   
 $= \frac{16057 - 37}{89} = 180$

5. Find the unit's digit in  $(264)^{102} + (264)^{103}$ .

Sol. Required unit's digit = unit's digit in  $(4)^{102} + (4)^{103}$

Now,  $4^2$  gives unit digit 6.

$\therefore (4)^{102}$  gives unit digit 6.

$(4)^{103}$  gives unit digit of the product  $(6 \times 4)$  i.e., 4.

Hence, unit's digit in  $(264)^{102} + (264)^{103} =$  unit's digit in  $(6 + 4) = 0$

6. Arrange the fractions  $\frac{3}{4}$ ,  $\frac{7}{12}$ ,  $\frac{13}{16}$ ,  $\frac{16}{29}$  &  $\frac{5}{8}$  in ascending order of magnitude.

Sol. Converting each of the given fractions into decimal form, we get:

$\frac{3}{4} = 0.75$ ,  $\frac{7}{12} = 0.5833$ ,  $\frac{13}{16} = 0.8125$ ,

$\frac{16}{29} = 0.5517$  and  $\frac{5}{8} = 0.625$

Now,

$0.5517 < 0.5833 < 0.625 < 0.75 < 0.8125$

$\therefore \frac{16}{29} < \frac{7}{12} < \frac{5}{8} < \frac{3}{4} < \frac{13}{16}$

7. Arrange the fractions  $\frac{9}{11}$ ,  $\frac{3}{5}$ ,  $\frac{4}{7}$  &  $\frac{8}{9}$  in their descending order.

Sol. Clearly,

$\frac{9}{11} = 0.818$ ,  $\frac{4}{7} = 0.571$ ,  $\frac{8}{9} = 0.88$ ,  $\frac{3}{5} = 0.6$

Now,  $0.88 > 0.818 > 0.6 > 0.571$

$\therefore \frac{8}{9} > \frac{9}{11} > \frac{3}{5} > \frac{4}{7}$

8. Express as vulgar fractions:  $4.\overline{142857}$

Sol.  $4.\overline{142857} = 4 + \overline{0.142857}$   
 $= 4 + \frac{142857}{999999} = 4 \frac{142857}{999999}$

9. If  $\frac{a}{b} = 0.25$ , then what is the value of  $\frac{2b - a}{2b + a} + \frac{2}{9}$  ?

$\frac{2b - a}{2b + a} + \frac{2}{9}$  ?

Sol.  $\frac{2b - a}{2b + a} + \frac{2}{9} = \frac{2 - \frac{a}{b}}{2 + \frac{a}{b}} + \frac{2}{9}$

$= \frac{2 - 0.25}{2 + 0.25} + \frac{2}{9} = \frac{1.75}{2.25} + \frac{2}{9} = \frac{7}{9} + \frac{2}{9} = \frac{9}{9} = 1$

10. Find the value of  $(1.99)^2$ .

Sol.  $(1.99)^2 = (2 - 0.01)^2 = 2^2 + (0.01)^2 - 2 \times 2 \times 0.01 = 4 + 0.0001 - 0.04 = 3.9601$

**PRACTICE EXERCISE**

- What is the sum of first 15 odd natural numbers?  
(a) 100 (b) 200  
(c) 300 (d) 225
- How many factors of 216 are prime numbers?  
(a) 2 (b) 3  
(c) 5 (d) 6
- The product of two numbers is 252 and one number is 21. What is the second number?  
(a) 31 (b) 7  
(c) 11 (d) 12
- The sum of all prime numbers between 58 and 68 is  
(a) 179 (b) 178  
(c) 187 (d) 183
- The sum of the perfect squares between 120 and 300 is  
(a) 1204 (b) 1024  
(c) 1296 (d) 1400
- Every rational number is also  
(a) an integer (b) a real number  
(c) a rational number (d) a whole number
- The unit's digit of  $13^{2003}$  is  
(a) 1 (b) 3  
(c) 7 (d) 9
- 325325 is a six-digit number. It is divisible by  
(a) 7 only (b) 11 only  
(c) 13 only (d) all 7, 11 and 13
- What least value must be given to n so that the number 6135n2 becomes divisible by 9?  
(a) 1 (b) 2  
(c) 3 (d) 4
- How many numbers less than 1000 are multiples of both 10 and 13?  
(a) 6 (b) 7  
(c) 8 (d) 9
- The least among the following fractions is  
(a)  $\frac{15}{16}$  (b)  $\frac{19}{20}$   
(c)  $\frac{24}{25}$  (d)  $\frac{34}{35}$
- Which of the following fractions is the largest?  
 $\frac{3}{2}, \frac{7}{3}, \frac{5}{4}, \frac{7}{2}$   
(a)  $\frac{7}{3}$  (b)  $\frac{5}{4}$
- (c)  $\frac{7}{2}$  (d)  $\frac{3}{2}$
- The number 0.242424 ..... In the form  $\frac{p}{q}$  is equal to  
(a)  $\frac{2}{11}$  (b)  $\frac{4}{11}$   
(c)  $\frac{2}{33}$  (d)  $\frac{8}{33}$
- $1.\overline{27}$  in the form  $\frac{p}{q}$  is equal to  
(a)  $\frac{127}{100}$  (b)  $\frac{14}{11}$   
(c)  $\frac{73}{100}$  (d)  $\frac{11}{14}$
- Which of the following is equal to 1?  
(a)  $\frac{(0.11)^2}{(1.1)^2 \times 0.1}$  (b)  $\frac{(1.1)^2}{11^2 \times (0.01)^2}$   
(c)  $\frac{(0.011)^2}{(1.1)^2 \times (0.01)^2}$  (d)  $\frac{(0.11)^2}{11^2 \times 0.01}$
- How many times is 0.1 greater than 0.01?  
(a) 1 time (b) 10 times  
(c) 100 times (d) 1000 times
- Out of the fractions  $\frac{3}{7}, \frac{4}{11}, \frac{5}{9}, \frac{6}{13}, \frac{7}{12}$ , which is the second largest?  
(a)  $\frac{3}{7}$  (b)  $\frac{4}{11}$   
(c)  $\frac{5}{9}$  (d)  $\frac{6}{13}$
- The value of  $(0.\overline{2} + 0.\overline{3} + 0.\overline{32})$  is  
(a)  $0.\overline{77}$  (b)  $0.\overline{82}$   
(c)  $0.\overline{86}$  (d)  $0.\overline{87}$
- Express  $\frac{1999}{2111}$  in decimal.  
(a) 0.893 (b) 0.904  
(c) 0.946 (d) 0.986
- $3.\overline{87} - 2.\overline{59} = ?$   
(a) 120 (b)  $1.\overline{2}$   
(c)  $1.\overline{27}$  (d)  $1.\overline{28}$
- The product of 0.09 and 0.007 is  
(a) 0.6300 (b) 0.00063  
(c) 0.00630 (d) 0.000063

22. Which is the closest approximation to the following product?  
 $0.3333 \times 0.25 \times 0.499 \times 0.125 \times 24$
- (a)  $\frac{1}{8}$  (b)  $\frac{3}{4}$   
(c)  $\frac{3}{8}$  (d)  $\frac{2}{5}$
23. A maximum of how many pieces of 12.6 cm can be cut from a 857 cm long rod?
- (a) 58 (b) 62  
(c) 64 (d) 68
24.  $\left( .00625 \text{ of } \frac{23}{5} \right)$  when expressed as a vulgar fraction, equals
- (a)  $\frac{23}{80}$  (b)  $\frac{23}{800}$   
(c)  $\frac{23}{8000}$  (d)  $\frac{125}{23}$
25. The vulgar fraction of 0.3939 is
- (a)  $\frac{15}{33}$  (b)  $\frac{11}{39}$   
(c)  $\frac{17}{39}$  (d)  $\frac{13}{33}$
26. What is the value of x so that the seven-digit number 8439x53 is divisible by 99?
- (a) 9 (b) 4  
(c) 3 (d) 6
27. How many 3-digit numbers are completely divisible by 4?
- (a) 225 (b) 224  
(c) 223 (d) 222
28.  $(91 + 92 + 93 + \dots + 110)$  is equal to
- (a) 4020 (b) 2010  
(c) 6030 (d) 8040
29. The difference between the local value and the face value of 7 in the numeral 32675149 is
- (a) 5149 (b) 64851  
(c) 69993 (d) 75142
30. Which of the following is always odd?
- (a) Sum of two odd numbers  
(b) Difference of two odd numbers  
(c) Product of two odd numbers  
(d) None of these

# 1. MIRROR & WATER IMAGES

## 1.1 MIRROR IMAGE

Reflection of an object into the mirror is called mirror-image.

Mirror image formation is based on the principle of 'LATERAL INVERSION' which implies that size of the image is equal to the size of the object, but both sides are interchanged. The left portion of the object is seen on the right portion and right portion of the object is seen on the left portion. For example, mirror image of ABC is  $\overline{CBA}$ . It is obtained by inverting an object laterally i.e., towards the sides.

Here problems are based on criteria that few alphabets, numbers, and figures are given and one need to find out the exact image of the given figure when the mirror is placed aside. Some noteworthy points to solve these questions are –

### 1. Mirror images of small letters & capital letters

Character	Mirror Image	Character	Mirror Image	Character	Mirror Image	Character	Mirror Image
a	ɹ	h	ɹ	o	o	v	v
b	d	i	i	p	q	w	w
c	ɔ	j	l	q	p	x	x
d	b	k	ɹ	r	ɹ	y	ɹ
e	ɛ	l	l	s	z	z	z
f	ɹ	m	m	t	t		
g	g	n	n	u	u		

Character	Mirror Image	Character	Mirror Image	Character	Mirror Image	Character	Mirror Image
A	A	H	H	O	O	V	V
B	B	I	I	P	q	W	W
C	C	J	l	Q	Q	X	X
D	D	K	ɹ	R	ɹ	Y	Y
E	E	L	l	S	z	Z	z
F	F	M	M	T	T		
G	G	N	n	U	U		

➤ There are '6' small letters in English alphabet which have identical mirror images -  
**i, l, o, v, w, x**

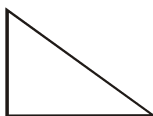
➤ There are '11' capital letters in English alphabet which have identical mirror images -  
**A, H, I, M, O, T, U, V, W, X, Y**

### 2. Mirror images of numbers

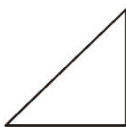
0		0	6		ɹ
1		l	7		ɹ
2		z	8		8
3		ɛ	9		ɛ
4		ɹ	10		0l
5		z			

### 3. Mirror images of objects

Objects



Mirror Images





### 3. Water images of objects

#### Objects

#### Water Images

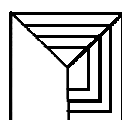
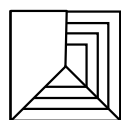
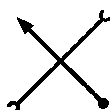
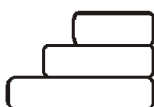
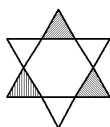
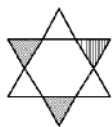
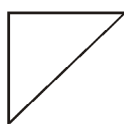
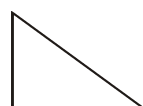


Illustration : Water images of

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is

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356274

is

47293



is



## VIDEO LECTURE – MIRROR & WATER IMAGES

Scan the QR code and learn the complete theory of the chapter.

Attempt the practice exercise only after going through theory and video lecture.



Lec 4 (Inverse Trigonometric ratios of multiple angles)

**PRACTICE EXERCISE**

**MIRROR IMAGES**

**Direction (1 to 4) :** In each of the following questions, you are given a combination of alphabets and/or numbers followed by four alternatives (a), (b), (c) and (d), Choose the alternative which most closely resembles the mirror image of the given combination:

- QUALITY**


(a) QNVTILAX (b) YTILAUQ  
(c) YTI LAU Q (d) YTI JA U Q
- MAGAZINE**


(a) MAGAZINE (b) ENIZADAM  
(c) MADAZINE (d) ENIZADAM
- AN 5 4 W M G 3**


(a) 3 G W M 4 2 N V  
(b) 3 G M W 4 2 N A  
(c) 3 G W M 4 2 N V  
(d) 3 G W M 4 2 N V
- N u 5 6 p 7 u R**


(a) N u 2 d q 7 u R (b) R n 7 q d 2 n U  
(c) R u 7 q d 2 u N (d) R u 2 d 9 2 u N


**Direction (5 to 9) :** In each of the following questions, choose the correct mirror-image of the figure (X) from four alternatives (a), (b), (c) and (d) given along with it.

- 

(X) (a) (b) (c) (d)
- 


(X) (a) (b) (c) (d)
- 

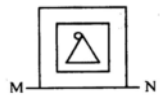
(X) (a) (b) (c) (d)
- 


(X) (a) (b) (c) (d)
- 

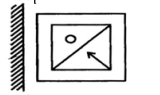
(X) (a) (b) (c) (d)

**Direction (10 to 14) :** In each of the following questions, choose the correct mirror-image of the figure (X) from amongst the four alternatives (a), (b), (c) and (d) given along with it. The mirror may be represented by a line MN or  $M_1M_2$ .


- 

(X) (a) (b) (c) (d)
- 

(X) (a) (b) (c) (d)
- 

(X) (a) (b) (c) (d)
- 

(X) (a) (b) (c) (d)
- QUACK**



(a) KCAUQ (b) KCAUQ  
(c) KCAUQ (d) KCAUQ
- Which of the following collections of letters will look the same in the mirror?

(a) OSMIHOM (b) VHRTRVH  
(c) HIMOSTA (d) AOVIVOA

**WATER IMAGES**

**Direction (16 to 20) :** In each of the following questions, you are given a combination of alphabets and/or numbers followed by four alternatives (a), (b), (c) and (d). Choose the alternative which most closely resembles the water image of the given combination.

- RECRUIT**

(a) RECRIUL (b) RECRIUL  
(c) LIRCIER (d) LIRCIER

17. ACOUSTIC:  
(a) ∇ ∅ ∅ ∅ NS LIC (b) ∇ ∅ ∅ ∅ NS LIC  
(c) ∇ ∅ ∅ ∅ NS LIC (d) ∇ ∅ ∅ ∅ NS TIC
18. A 1 M 3 b :  
(a) ∇ I W 3 P (b) ∇ I W 3 P  
(c) ∇ I W 3 P (d) ∇ I W 3 P
19. E 8 t 4 e 9 C :  
(a) E 8 t 4 e 9 C (b) E 8 t 4 e 9 C  
(c) E 8 t 4 e 9 C (d) E 8 t 4 e 9 C
20. a b 4 5 C D 6 7 :  
(a) a P t 2 C D e Δ (b) a P t 2 C D e Δ  
(c) a P t 2 c d 9 Δ (d) a P t 2 c d e Δ

**Direction (21 to 30) :** In each of the following questions, choose the correct water image of the figure (X) from four alternatives (a), (b), (c) and (d) given along with it.

21. (X)
- (a)
- (b)
- (c)
- (d)
22. (X)
- (a)
- (b)
- (c)
- (d)
23. (X)
- (a)
- (b)
- (c)
- (d)
24. (X)
- (a)
- (b)
- (c)
- (d)

25. (X)
- (a)
- (b)
- (c)
- (d)
26. (X)
- (a)
- (b)
- (c)
- (d)
27. (X)
- (a)
- (b)
- (c)
- (d)
28. (X)
- (a)
- (b)
- (c)
- (d)
29. (X)
- (a)
- (b)
- (c)
- (d)
30. (X)
- (a)
- (b)
- (c)
- (d)

## 4. ABOUT LANGUAGES

There are over 7000 languages spoken in the world. But more than half of the world's population speak only 23 of them.

10 Most Popular Languages with approximate number are -

S.N.	Language	First Language Speakers	Total Speakers
1	English	37 Crore	145 Crore
2	Mandarin	93 Crore	111 Crore
3	Hindi	34 Crore	60 Crore
4.	Spanish	47 Crore	55 Crore
5	French	8 Crore	28 Crore
6	Modern Standard Arabic	0 Crore	27 Crore
7	Bengali	23 Crore	27 Crore
8	Russian	15 Crore	26 Crore
9	Portuguese	23 Crore	26 Crore
10	Urdu	7 Crore	23 Crore

### English

- English is the most-spoken language in the world including native and non-native speakers. It is the default language in international business, tourism, technology, and much more. 60% of everything published on the web is in English language.

### Mandarin

- Looking at total speakers, Mandarin is the second most widely spoken language in the world. However, it is the most spoken language in the world if you count only first-language (native) speakers due to China's significant population.
- Mandarin is not actually a language, but a set of dialects of the Chinese language. What unifies these dialects under the same name is that their speakers can understand each other.

### Hindi

- Hindi is one of the 22 officials' languages of India. India's incredible linguistic diversity (more than 121 languages coexist) explains the high rate of non-native speakers. In addition to India, Hindi is spoken by over a quarter of the population of Nepal.

### Spanish

- Spanish is the second most widely spoken language globally in terms of native speakers. In addition, it is the most spoken of the Romance languages and the third most used on the internet.
- Spain's enormous colonial expansion took this language not only to the Americas but also to Africa and Asia. Today, there are 21 Spanish-speaking countries in the world, with dozens more that have a significant Spanish-speaking population. Interestingly, the United States is the second country with the largest number of Spanish speakers in the world.

## French

- Like Spanish and English, French spread throughout the world along with the French colonial empire. Today, there are 29 French-speaking countries all around the world.
- If English is the language of business, then French is considered the language of culture. Its enormous importance is also reflected in the fact that it is the third language with the largest number of non-native speakers.

## Modern Standard Arabic

- Modern Standard Arabic (MSA) is the only language on this list without native speakers. Indeed, Arabic is a large language with many different dialects, and all Arabic speakers grow up speaking a local dialect, like Egyptian Arabic, Levantine Arabic, Mesopotamian Arabic, or another local variety.
- MSA have so many non-native speakers, because MSA is commonly used in newspapers, TV broadcasts, and movies, but people do not speak it with each other. It is an academic language that is used in literature in politics, but not in everyday life.

## Bengali

- Bengali is the official language of Bangladesh and is also spoken in some areas of India and Burma. It may come as a surprise that a language spoken in such a small region appears in a list of the most spoken languages in the world. However, it makes sense after knowing about the population density of that region.

## Russian

- Less surprising is the inclusion of Russian among the most widely spoken languages globally considering that Russia is the largest country in the world by territory. While Russian is the official language of only four countries, it is widely spoken in 19 countries. Russian is also the language with the highest number of native speakers in all of Europe.

## Portuguese

- Portuguese is another language that expanded worldwide during the European colonial period. Today, Portuguese is the official language of nine countries in Europe, South America, Africa, and Asia. Brazil is the largest country out of those nine and has the most Portuguese speakers. Brazil's large population makes Portuguese the most widely spoken language in the Southern Hemisphere.

## Urdu

- Urdu is one of the two official languages in Pakistan and is also widely used in certain regions of India. The spoken part of Urdu is widely intelligible with Hindi, as both speakers can understand each other without much issue. However, Urdu uses a modified Persian script for its alphabet, while Hindi uses Devnagari.

# LANGUAGES OF INDIA

India is home to a total of 121 languages and 270 mother tongues.

Indian languages belong to either the **Indo-Aryan language family** (the largest) or the **Dravidian language family** (the second largest).

The Indo-Aryan languages are spoken by more than 80 Crore people and are spoken in Nepal, Pakistan, Bangladesh, and Sri Lanka. In Indo-Aryan language family, the top languages spoken in terms of the number of speakers are Hindi, Urdu, Bengali, Punjabi, Marathi, and Gujarati.

Dravidian languages are spoken by around 22 Crore people, living in southern and central India. The primary languages spoken in Dravidian language family are Telugu, Tamil, Kannada, and Malayalam.

India has no national language, but the Indian constitution recognizes 22 languages as official languages. These are:

1 Bengali	2 Hindi	3 Maithili
4 Nepalese	5 Sanskrit	6 Tamil
7 Urdu	8 Assamese	9 Dogri
10 Kannada	11 Gujarati	12 Bodo
13 Manipur (also known as Meitei)	14 Oriya	15 Marathi
16 Santali	17 Telugu	18 Punjabi
19 Sindhi	20 Malayalam	21 Konkani
22 Kashmiri		

- **English** is the second working language after Hindi in India. In fact, India is ranked as the world's second-largest English-speaking country after the United States. English in India is primarily used in business, education, and official documents.
- English has many words of Indian origin including; dungarees, avatar, jungle, tank, shampoo, roti, dinghy, chutney, mongoose etc.
- Hindi and Bengali are among one of the most spoken languages in the world.
- Telugu is an Indian language which is known as the 'Italian of the East'
- Sanskrit, Urdu, Nepalese, Bengali and Gujarati all have some similarities with Hindi, either in spoken language or in the written script.



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## 1. RELATIONS & FUNCTIONS

### 1. ORDERED PAIR

Ordered pair of elements taken from any two sets P and Q is a pair of elements written in small brackets and grouped together in a particular order, i.e.,  $(p, q)$  is an ordered pair such that  $p \in P$  and  $q \in Q$ .

### 2. CARTESIAN PRODUCT

Given two non-empty sets P and Q. The cartesian product  $P \times Q$  is the set of all ordered pairs of elements from P and Q, i.e.,

$$P \times Q = \{ (p, q) : p \in P, q \in Q \}$$

If either P or Q is the null set, then  $P \times Q$  will also be empty set, i.e.,  $P \times Q = \phi$

**Note:**

- (i) Two ordered pairs are equal, if and only if the corresponding first elements are equal and the second elements are also equal.
- (ii) If there are p elements in A and q elements in B, then there will be pq elements in  $A \times B$ , i.e., if  $n(A) = p$  and  $n(B) = q$ , then  $n(A \times B) = pq$ .
- (iii) If A and B are non-empty sets and either A or B is an infinite set, then so is  $A \times B$ .
- (iv)  $A \times A \times A = \{ (a, b, c) : a, b, c \in A \}$ . Here  $(a, b, c)$  is called an ordered triplet.
- (v) If A and B are two non-empty sets having n elements in common then  $(A \times B)$  and  $(B \times A)$  have  $n^2$  elements in common.

**Illustration 1:**  $A_1 \times A_2 \times A_3 \times A_4 = \{ (1, 1, 1, 1), (2, 4, 8, 16), (3, 9, 27, 81), \dots \}$ . Find  $A_1, A_2, A_3$  and  $A_4$ .

**Solution :** Each ordered pair  $\{x_1, x_2, x_3, x_4\}$  is of the form  $\{x, x^2, x^3, x^4\}$   
Hence  $x_1 \in A_1 \Rightarrow A_1 = \{x : x \in \mathbb{N}\} = \{1, 2, 3, 4, \dots\}$   
 $x_2 \in A_2 \Rightarrow A_2 = \{x^2 : x \in \mathbb{N}\} = \{1^2, 2^2, 3^2, 4^2, \dots\}$   
 $x_3 \in A_3 \Rightarrow A_3 = \{x^3 : x \in \mathbb{N}\} = \{1^3, 2^3, 3^3, 4^3, \dots\}$   
 $x_4 \in A_4 \Rightarrow A_4 = \{x^4 : x \in \mathbb{N}\} = \{1^4, 2^4, 3^4, 4^4, \dots\}$

**Illustration 2:** If  $A = \{2, 4\}$  and  $B = \{3, 4, 5\}$ , then find  $(A \cap B) \times (A \cup B)$ .

**Solution :**  $A \cap B = \{4\}$  and  $A \cup B = \{2, 3, 4, 5\}$   
 $\therefore (A \cap B) \times (A \cup B) = \{(4, 2), (4, 3), (4, 4), (4, 5)\}$

### 3. RELATIONS

For any two non-empty sets A and B, every subset of  $A \times B$  defines a relation from A to B and every relation from A to B is a subset of  $A \times B$ .

$$a R b \subseteq A \times B \quad \forall R$$

If  $(a, b) \in R$ , then a R b is read as 'a is related to b'

If  $(a, b) \notin R$ , then a R b is read as 'a is not related to b'.

### 4. DOMAIN, CO-DOMAIN & RANGE OF RELATION

**Domain** of R is the set of first components of all the ordered pairs belonging to R, i.e.

$$\text{Dom}(R) = \{a \in A : (a, b) \in R \text{ for some } b \in B\}$$

**Range** of R is the set of second components of all the ordered pairs belonging to R, i.e.

$$\text{Range of } R = \{b \in B : (a, b) \in R \text{ for some } a \in A\}$$

**Co-domain** of R = B where R is a relation from A to B

**Note :** Range of R  $\subseteq$  Co-domain of R

**Illustration 3:** Let  $A = \{1, 3, 4, 5, 7\}$  and  $B = \{1, 4, 6, 7\}$  and  $R$  be the relation 'is one less than' from  $A$  to  $B$ , then list the domain, range and co-domain sets of  $R$ .

**Solution :**  $R = \{(3, 4), (5, 6)\}$   
So,  $\text{Dom}(R) = \{3, 5\}$   
Range of  $R = \{4, 6\}$   
Co-domain of  $R = B = \{1, 4, 6, 7\}$   
Clearly Range of  $R \subseteq$  co-domain of  $R$ .

## 5. REPRESENTATION OF A RELATION

Let  $A = \{-2, -1, 4\}$   $B = \{1, 4, 9\}$

A relation from  $A$  to  $B$  i.e.  $a R b$  is defined as  $a$  is less than  $b$ .

This can be represented in the following ways.

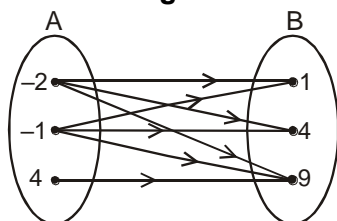
(i) **Roster form:**

$$R = \{(-2, 1), (-2, 4), (-2, 9), (-1, 1), (-1, 4), (-1, 9), (4, 9)\}$$

(ii) **Set builder notation:**

$$R = \{(a, b) : a \in A \text{ and } b \in B, a \text{ is less than } b\}$$

(iii) **Arrow - diagram:**



**Note :**

(i) Any subset of  $A \times A$  is a relation on  $A$ .

(ii) If  $n(A) = p$  and  $n(B) = q$  then  $n(A \times B) = pq$ . So, total number of subsets of  $(A \times B) = 2^{pq}$

Hence  $2^{pq}$  different relations are possible from  $A$  to  $B$ .

## 6. INVERSE RELATION

Let  $R \subseteq A \times B$  be a relation from  $A$  to  $B$ .

The inverse relation of  $R$  (denoted by  $R^{-1}$ ) is a relation from  $B$  to  $A$  defined as  $R^{-1} = \{(b, a) : (a, b) \in R\}$

If  $(a, b) \in R$ , then  $(b, a) \in R^{-1}, \forall a \in A, b \in B$ .

Domain of  $R^{-1} = \text{Range of } R$

Range of  $R^{-1} = \text{Domain of } R$

## 7. TYPES OF RELATION

1. **Empty/Void Relation** : Let  $A$  be a set. Then  $\phi \subseteq A \times A$  and so it is a relation on  $A$ . This relation is called the void or empty relation on  $A$ .

2. **Universal Relation** : Let  $A$  be a set. Then  $A \times A \subseteq A \times A$  and so it is a relation on  $A$ . This relation is called the universal relation on  $A$ .

**Note:** The void and the universal relations on a set  $A$  are respectively the smallest and the largest relations of  $A$ .

3. **Identity Relation** : The identity relation on a set  $A$  is the set of ordered pairs belonging to  $A \times A$  such that every element of  $A$  is related to only itself. It is denoted by  $I_A$ , i.e.  $I_A = \{(a, a) : a \in A\}$

**For example**, the relation  $I_A = \{(1, 1), (2, 2), (3, 3)\}$  is the identity relation on set  $A = \{1, 2, 3\}$ . But relations  $R_1 = \{(1, 1), (2, 2)\}$  and  $R_2 = \{(1, 1), (2, 2), (3, 3), (1, 3)\}$  are not identity relations on  $A$ , because  $(3, 3) \notin R_1$  and in  $R_2$  element 1 is related to elements 1 and 3.

4. **Reflexive Relation** : A relation  $R$  on a set  $A$  is said to be reflexive if every element of  $A$  is related to itself. Thus,  $R$  is reflexive  $\Leftrightarrow (a, a) \in R$  for all  $a \in A$ . A relation  $R$  on a set  $A$  is not reflexive if there exists an element  $a \in A$  such that  $(a, a) \notin R$ .  
**For example**, let  $A = \{1, 2, 3\}$  be a set. Then  $R = \{(1, 1), (2, 2), (3, 3), (1, 3), (2, 1)\}$  is a reflexive relation on  $A$ . But  $R_1 = \{(1, 1), (3, 3), (2, 1), (3, 2)\}$  is not a reflexive relation on  $A$ , because  $2 \in A$  but  $(2, 2) \notin R_1$ .  
**Note** : The identity relation on a non-void set  $A$  is always reflexive relation on  $A$ . However, a reflexive relation on  $A$  is not necessarily the identity relation on  $A$ . For example, the relation  $R = \{(a, a), (b, b), (c, c), (a, b)\}$  is a reflexive relation on set  $A = \{a, b, c\}$  but it is not the identity relation on  $A$ .
5. **Symmetric Relation** : A relation  $R$  on a set  $A$  is said to be a symmetric relation iff  $(a, b) \in R \Rightarrow (b, a) \in R$  for all  $a, b \in A$  i.e.  $aRb \Rightarrow bRa$  for all  $a, b \in A$ .  
**For example**, let  $A = \{1, 2, 3, 4\}$  and let  $R_1$  and  $R_2$  be relation on  $A$  given by  $R_1 = \{(1, 3), (1, 4), (3, 1), (2, 2), (4, 1)\}$  and  $R_2 = \{(1, 1), (2, 2), (3, 3), (1, 3)\}$ . Clearly,  $R_1$  is a symmetric relation on  $A$ . However,  $R_2$  is not so, because  $(1, 3) \in R_2$  but  $(3, 1) \notin R_2$ .
6. **Transitive Relation** : Let  $A$  be any set. A relation  $R$  on  $A$  is said to be a transitive relation iff  $(a, b) \in R$  and  $(b, c) \in R \Rightarrow (a, c) \in R$  for all  $a, b, c \in A$ . i.e.  $aRb$  and  $bRc \Rightarrow aRc$  for all  $a, b, c \in A$ .  
**For example**, the relation  $R$  on the set  $\mathbb{N}$  of all natural numbers defined by  $(x, y) \in R \Leftrightarrow x$  divides  $y$ , for all  $x, y \in \mathbb{N}$  is transitive.
7. **Equivalence Relation** : A relation  $R$  on a set  $A$  is said to be an equivalence relation if and only if  $R$  is reflexive, symmetric and transitive.

## 8. FUNCTION

Let  $A$  and  $B$  are two non-empty sets. A function  $f$  from set  $A$  to set  $B$  is a rule which associated each element of  $A$  to a unique element of  $B$ , denoted by  $f : A \rightarrow B$

If element  $x$  of  $A$  corresponds to  $y (\in B)$  under the function  $f$ , then we say that  $y$  is the image of  $x$  and write  $f(x) = y$ .

Set  $A$  is called **domain**, set  $B$  is called **co-domain** & the set of on  $f$ -images of elements of  $A$  is called **range** of function  $f$ .

**Note** :

- (i) Any linear expression represents a function.
- (ii) Range of ' $f$ '  $\subseteq$  co-domain of ' $f$ '
- (iii)  $f : A \rightarrow B$  is not a function, if there is at least one element in  $A$  which does not have a  $f$ -image in  $B$  or if there is an element in  $A$  which has more than one  $f$ -images in  $B$ .

**For example**,  $f = \{(1, 2), (1, -1), (2, 2), (3, 3)\}$  is not a function as  $1 \rightarrow 2$  and  $1 \rightarrow -1$ .

- (iv) A function can also be represented as a set of ordered pairs

**For example**,  $f = \{(1, 2), (2, 3), (3, 4), (4, 4)\}$  is a function from  $\{1, 2, 3, 4\}$  to  $\{2, 3, 4\}$ .

**Illustration 4**: Which of the following given below is/are a function, from  $\mathbb{R}$  to  $\mathbb{R}$ ?

- (i)  $f(x) = x^2$
- (ii)  $f(x) = \sqrt{x}$
- (iii)  $f(x) = 3x + 4$

**Solution** : (i) Yes, because all elements of domain (which is  $\mathbb{R}$ ) have images in co-domain ( $\mathbb{R}$ ).  
(ii) No, this is not a function because all negative numbers in domain ( $\mathbb{R}$ ), do not have images in co-domain.

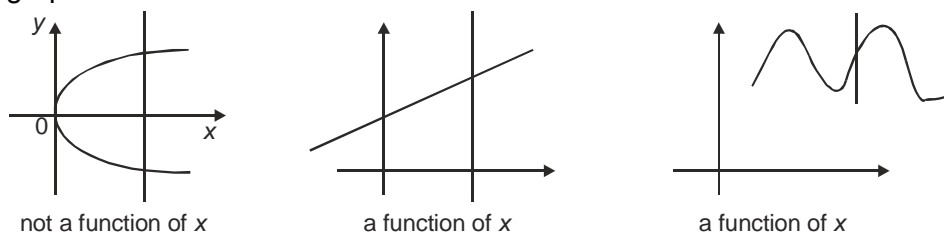
i.e.  $f(-1) = \sqrt{-1}$  (imaginary no.)

$f(-2) = \sqrt{-2}$  (imaginary no.)

(iii) Yes, because all real numbers in domain have images in co-domain.

### 9. THE GRAPH OF A FUNCTION

The graph of a function  $y = f(x)$  consists of all points  $(x, f(x))$  in the Cartesian plane. Since by definition of a function, there is exactly one value of  $y$  for each  $x$ , it follows that no vertical line can intersect the graph of a function of  $x$  for twice or more.



### 10. TYPES OF FUNCTION

- One-One Function (Injection)** : A function  $f: A \rightarrow B$  is said to be a one-one function or an injection if different elements of  $A$  have different images in  $B$ .

Thus,  $f: A \rightarrow B$  is one-one  $\Leftrightarrow a \neq b \Rightarrow f(a) \neq f(b)$  for all  $a, b \in A \Leftrightarrow f(a) = f(b) \Rightarrow a = b$  for all  $a, b \in A$

**Note** : Let  $f: A \rightarrow B$  and let  $x, y \in A$ . Then,  $x = y \Rightarrow f(x) = f(y)$  is always true from the definition of function. But,  $f(x) = f(y) \Rightarrow x = y$  is true only when  $f$  is one-one.

- Many-One Function** : A function  $f: A \rightarrow B$  is said to be a many-one function if two or more elements of set  $A$  have the same image in  $B$ .

Thus,  $f: A \rightarrow B$  is a many-one function if there exist  $x, y \in A$  such that  $x \neq y$  but  $f(x) = f(y)$ . In other words,  $f: A \rightarrow B$  is a many-one function if it is not a one-one function.

- Onto Function (Surjection)** : A function  $f: A \rightarrow B$  is said to be an onto function or a surjection if every element of  $B$  is the  $f$ -image of some element of  $A$  i.e., if  $f(A) = B$  or range of  $f$  is the co-domain of  $f$ .

Thus,  $f: A \rightarrow B$  is a surjection iff for each  $b \in B$ , there exists  $a \in A$  such that  $f(a) = b$ .

- Into function** : A function  $f: A \rightarrow B$  is an into function if there exists an element in  $B$  having no pre-image in  $A$ . In other words,  $f: A \rightarrow B$  is an into function if it is not an onto function.

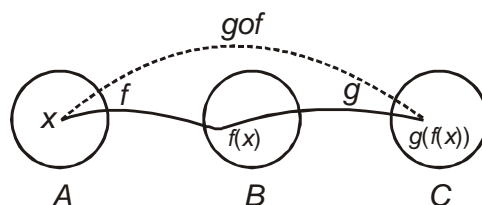
- Bijection (one-one onto function)** : A function  $f: A \rightarrow B$  is a bijection if it is one-one as well as onto. In other words, a function  $f: A \rightarrow B$  is a bijection if

(i) It is one-one i.e.  $f(x) = f(y) \Rightarrow x = y$  for all  $x, y \in A$ .

(ii) It is onto i.e. for all  $y \in B$ , there exists  $x \in A$  such that  $f(x) = y$ .

### 11. COMPOSITE FUNCTION

Let  $f: A \rightarrow B$  &  $g: B \rightarrow C$  be two functions. Then the function  $g \circ f: A \rightarrow C$  defined by  $(g \circ f)(x) = g(f(x))$   $\forall x \in A$  is called the composite of the two functions  $f$  and  $g$ . Note that,  $g \circ f$  is defined only if  $\text{Range } f \subseteq \text{dom } g$



#### Properties of composite functions :

- The composite of functions is not commutative i.e.  $g \circ f \neq f \circ g$ .
- The composite of functions is associative i.e. if  $f, g, h$  are three functions such that  $f \circ (g \circ h)$  and  $(f \circ g) \circ h$  are defined, then  $f \circ (g \circ h) = (f \circ g) \circ h$ .

## 12. INVERSE OF A FUNCTION

Let  $f: A \rightarrow B$  be a one-one and onto function, then there exists a unique function  $g: B \rightarrow A$  such that  $f(x) = y \Leftrightarrow g(y) = x, \forall x \in A \& y \in B$ . Then  $g$  is said to be inverse of  $f$ . Thus

$$g = f^{-1}: B \rightarrow A = \{(f(x), x) \mid (x, f(x)) \in f\}.$$

**Note :** A function need not have an inverse. To have an inverse, a function must be both one-one and onto, i.e. bijective.

For example, the function  $f(x) = x^2$  has no inverse (where  $f: \mathbb{R} \rightarrow \mathbb{R}$ ) since it is a many-one and into function.

### Properties of inverse function :

- Inverse of a bijection is unique.
- If  $f: A \rightarrow B$  is a bijection and  $g: B \rightarrow A$  is the inverse of  $f$ , then  $f \circ g = I_B$  and  $g \circ f = I_A$ , where  $I_A$  &  $I_B$  are identity functions on the sets  $A$  and  $B$  respectively. Note that the graph of  $f$  and  $g$  are the mirror images of each other on the line  $y = x$ .
- The inverse of an Identity function is the function itself.
- The inverse of a bijection is also a bijection.
- If  $f$  and  $g$  are two bijections  $f: A \rightarrow B, g: B \rightarrow C$  then the inverse of  $g \circ f$  exists and  $(g \circ f)^{-1} = f^{-1} \circ g^{-1}$ .

**Illustration 5:** Find the inverse of  $f(x) = \frac{e^x - e^{-x}}{2}$

**Solution :** Write  $y = \frac{e^x - e^{-x}}{2} \Rightarrow 2y = \frac{e^{2x} - 1}{e^x}$

$$\Rightarrow e^{2x} - 2ye^x - 1 = 0 \Rightarrow e^x = \frac{2y \pm \sqrt{4y^2 + 4}}{2}$$

$$\Rightarrow e^x = y \pm \sqrt{y^2 + 1}$$

Since  $e^x \geq 0$  so  $e^x = y + \sqrt{y^2 + 1} \Rightarrow x = \log(y + \sqrt{y^2 + 1})$

Thus  $f^{-1}(x) = \log(x + \sqrt{x^2 + 1})$

## SOLVED OBJECTIVE EXAMPLES

1. The relation  $R = \{(1, 1), (2, 2), (3, 3), (1, 2), (2, 3), (1, 3)\}$  on set  $A = \{1, 2, 3\}$  is

- Reflexive but not symmetric
- Reflexive but not transitive
- Symmetric and Transitive
- Neither symmetric nor transitive

Sol. (a)

Since  $(1, 1); (2, 2); (3, 3) \in R$  therefore  $R$  is reflexive.  $(1, 2) \in R$  but  $(2, 1) \notin R$ , therefore  $R$  is not symmetric.  $(1, 2); (2, 3) \in R$  &  $(1, 3) \in R$ , therefore  $R$  is transitive.

2. Let  $R$  be a relation on  $\mathbb{N}$  defined by  $x + 2y = 8$ .

The domain of  $R$  is

- $\{2, 4, 8\}$
- $\{2, 4, 6, 8\}$

(c)  $\{2, 4, 6\}$

(d)  $\{1, 2, 3, 4\}$

Sol. (c)

$R$  is a relation on  $\mathbb{N}$  defined by  $x + 2y = 8$

$$\therefore R = \{(2, 3); (4, 2); (6, 1)\}$$

Hence, Domain of  $R = \{2, 4, 6\}$ .

3. Let  $L$  denote the set of all straight lines in a plane. Let a relation  $R$  be defined by  $\alpha R \beta \Leftrightarrow \alpha \perp \beta, \alpha, \beta \in L$ . Then  $R$  is

- Reflexive
- Symmetric
- Transitive
- None of these

Sol. (b)

$$\text{Here } \alpha R \beta \Leftrightarrow \alpha \perp \beta \therefore \alpha \perp \beta \Leftrightarrow \beta \perp \alpha$$

$$\therefore \alpha R \beta \Leftrightarrow \beta R \alpha$$

Hence, R is symmetric.

4. If  $f(x) = \frac{1-x}{1+x}$ , then  $f[f(\cos 2\theta)] =$
- (a)  $\tan 2\theta$                       (b)  $\sec 2\theta$   
(c)  $\cos 2\theta$                       (d)  $\cot 2\theta$

Sol. (c)

$$f[f(\cos 2\theta)] = f\left[\frac{1-\cos 2\theta}{1+\cos 2\theta}\right]$$

$$= f(\tan^2 \theta) = \frac{1-\tan^2 \theta}{1+\tan^2 \theta} = \cos 2\theta.$$

5. The function  $f: \mathbb{R} \rightarrow \mathbb{R}$  defined by  $f(x) = (x-1)(x-2)(x-3)$  is
- (a) One-one but not onto  
(b) Onto but not one-one  
(c) Both one-one and onto  
(d) Neither one-one nor onto

Sol. (b)

We have  $f(x) = (x-1)(x-2)(x-3)$   
and  $f(1) = f(2) = f(3) = 0 \Rightarrow f(x)$  is not one-one.  
For each  $y \in \mathbb{R}$ , there exists  $x \in \mathbb{R}$  such that  $f(x) = y$ . Therefore, f is onto. Hence  $f: \mathbb{R} \rightarrow \mathbb{R}$  is onto but not one-one.

6. If  $g(x) = x^2 + x - 2$  and  $\frac{1}{2} \text{gof}(x) = 2x^2 - 5x + 2$ , then  $f(x)$  is
- (a)  $2x - 3$                       (b)  $2x + 3$   
(c)  $2x^2 + 3x + 1$               (d)  $2x^2 - 3x - 1$

Sol. (a)

$$\frac{1}{2}(\text{gof})(x) = 2x^2 - 5x + 2 \text{ or}$$

$$\frac{1}{2}g[f(x)] = 2x^2 - 5x + 2$$

$$\lim_{x \rightarrow 0} \frac{(1+nx + {}^n C_2 x^2 + \dots \text{higher powers of } x \text{ to } x^n) - 1}{x}$$

$$\Rightarrow f(x)^2 + f(x) - (4x^2 - 10x + 6) = 0$$

$$\therefore f(x) = \frac{-1 \pm \sqrt{1+4(4x^2 - 10x + 6)}}{2}$$

$$= \frac{-1 \pm \sqrt{16x^2 - 40x + 25}}{2} = \frac{-1 + (4x - 5)}{2} = 2x - 3$$

7. If  $f: \mathbb{R} \rightarrow \mathbb{R}$  satisfies  $f(x+y) = f(x) + f(y)$ , for all  $x, y \in \mathbb{R}$  and  $f(1) = 7$ , then  $\sum_{r=1}^n f(r)$  is
- (a)  $\frac{7n}{2}$                               (b)  $\frac{7(n+1)}{2}$   
(c)  $7n(n+1)$                       (d)  $\frac{7n(n+1)}{2}$

Sol. (d)

$$f(x+y) = f(x) + f(y)$$

Put  $x=1, y=0 \Rightarrow f(1) = f(1) + f(0) = 7$   
Put  $x=1, y=1 \Rightarrow f(2) = 2.f(1) = 2.7$   
Similarly,  $f(3) = 3.7$  and so on

$$\therefore \sum_{r=1}^n f(r) = 7(1+2+3+\dots+n) = \frac{7n(n+1)}{2}.$$

8. If function  $f(x) = \frac{1}{2} - \tan\left(\frac{\pi x}{2}\right)$ ;  $(-1 < x < 1)$  and  $g(x) = \sqrt{3+4x-4x^2}$ , then the domain of  $\text{gof}$  is
- (a)  $(-1, 1)$                       (b)  $\left[-\frac{1}{2}, \frac{1}{2}\right]$   
(c)  $\left[-1, \frac{1}{2}\right]$                       (d)  $\left[-\frac{1}{2}, -1\right]$

Sol. (a)

Since domain of f and domain of composite function  $\text{gof}$  are same.  
So, domain of  $\text{gof} = (-1, 1)$

**PRACTICE EXERCISE**

1. Given two finite sets A and B such that  $n(A) = 2$ ,  $n(B) = 3$ . Then total number of relations from A to B is
- (a) 4                                  (b) 8  
(c) 64                                (d) None of these
2. Let  $A = \{1, 2, 3\}$ . The total number of distinct relations that can be defined over A is
- (a)  $2^9$                                 (b) 6                                  (c) 8                                  (d) None of these
3. The relation R is defined on the set of natural numbers as  $\{(a, b) : a = 2b\}$ . Then  $R^{-1}$  is given by
- (a)  $\{(2, 1), (4, 2), (6, 3), \dots\}$   
(b)  $\{(1, 2), (2, 4), (3, 6), \dots\}$   
(c)  $R^{-1}$  is not defined  
(d) None of these

4. Let  $R$  be a reflexive relation on a finite set  $A$  having  $n$ -elements, and let there be  $m$  ordered pairs in  $R$ . Then  
 (a)  $m \geq n$  (b)  $m \leq n$   
 (c)  $m = n$  (d) None of these
5. Let  $R$  be a reflexive relation on a set  $A$  and  $I$  be the identity relation on  $A$ . Then  
 (a)  $R \subset I$  (b)  $I \subset R$   
 (c)  $R = I$  (d) None of these
6. If  $A = \{x : x^2 - 5x + 6 = 0\}$ ,  $B = \{2, 4\}$ ,  $C = \{4, 5\}$ , then  $A \times (B \cap C)$  is  
 (a)  $\{(2, 4), (3, 4)\}$   
 (b)  $\{(4, 2), (4, 3)\}$   
 (c)  $\{(2, 4), (3, 4), (4, 4)\}$   
 (d)  $\{(2, 2), (3, 3), (4, 4), (5, 5)\}$
7. Let  $A = \{1, 2, 3, 4, 5\}$ ;  $B = \{2, 3, 6, 7\}$ . Then the number of elements in  $(A \times B) \cap (B \times A)$  is  
 (a) 18 (b) 6  
 (c) 4 (d) 0
8. Let  $R$  be the relation on the set  $R$  of all real numbers defined by  $a R b$  iff  $|a - b| \leq 1$ . Then  $R$  is  
 (a) Reflexive and Symmetric  
 (b) Symmetric only  
 (c) Transitive only  
 (d) Anti-symmetric only
9. Let  $R$  be a relation on the set  $N$  of natural numbers defined by  $n R m \Leftrightarrow n$  is a factor of  $m$  (i.e.,  $n|m$ ). Then  $R$  is  
 (a) Reflexive and symmetric  
 (b) Transitive and symmetric  
 (c) Equivalence  
 (d) Reflexive, transitive but not symmetric
10. Let  $R$  and  $S$  be two non-void relations on a set  $A$ . Which of the following statements is false  
 (a)  $R$  and  $S$  are transitive  $\Rightarrow R \cup S$  is transitive  
 (b)  $R$  and  $S$  are transitive  $\Rightarrow R \cap S$  is transitive  
 (c)  $R$  and  $S$  are symmetric  $\Rightarrow R \cup S$  is symmetric  
 (d)  $R$  and  $S$  are reflexive  $\Rightarrow R \cap S$  is reflexive
11. Let  $P = \{(x, y) | x^2 + y^2 = 1, x, y \in R\}$ . Then  $P$  is  
 (a) Reflexive (b) Symmetric  
 (c) Transitive (d) Anti-symmetric
12. Let  $X$  be a family of sets and  $R$  be a relation on  $X$  defined by 'A is disjoint from B'. Then  $R$  is  
 (a) Reflexive (b) Symmetric  
 (c) Anti-symmetric (d) Transitive
13. The relation  $R$  defined on the set  $A = \{1, 2, 3, 4, 5\}$  by  $R = \{(x, y) : |x^2 - y^2| < 16\}$  is given by  
 (a)  $\{(1, 1), (2, 1), (3, 1), (4, 1), (2, 3)\}$   
 (b)  $\{(2, 2), (3, 2), (4, 2), (2, 4)\}$   
 (c)  $\{(3, 3), (3, 4), (5, 4), (4, 3), (3, 1)\}$   
 (d) None of these
14. A relation  $R$  is defined from  $\{2, 3, 4, 5\}$  to  $\{3, 6, 7, 10\}$  by  $x R y \Leftrightarrow x$  is relatively prime to  $y$ . Then domain of  $R$  is  
 (a)  $\{2, 3, 5\}$  (b)  $\{3, 5\}$   
 (c)  $\{2, 3, 4\}$  (d)  $\{2, 3, 4, 5\}$
15. If  $R = \{(x, y) | x, y \in Z, x^2 + y^2 \leq 4\}$  is a relation in  $Z$ , then domain of  $R$  is  
 (a)  $\{0, 1, 2\}$  (b)  $\{0, -1, -2\}$   
 (c)  $\{-2, -1, 0, 1, 2\}$  (d) None of these
16. Let  $A = \{1, 2, 3, 4\}$  and  $R$  be a relation in  $A$  given by  $R = \{(1, 1), (2, 2), (3, 3), (4, 4), (1, 2), (2, 1), (3, 1), (1, 3)\}$ . Then  $R$  is  
 (a) Reflexive  
 (b) Symmetric  
 (c) Both reflexive & symmetric  
 (d) An equivalence relation
17. An integer  $m$  is said to be related to another integer  $n$  if  $m$  is a multiple of  $n$ . Then the relation is  
 (a) Reflexive and symmetric  
 (b) Reflexive and transitive  
 (c) Symmetric and transitive  
 (d) Equivalence relation
18. Let  $R$  be a relation on a set  $A$  such that  $R = R^{-1}$ , then  $R$  is  
 (a) Reflexive (b) Symmetric  
 (c) Transitive (d) None of these
19. The relation "is subset of" on the power set  $P(A)$  of a set  $A$  is  
 (a) Symmetric  
 (b) Anti-symmetric  
 (c) Equivalency relation  
 (d) None of these
20. Let  $A = \{1, 2, 3, 4\}$  and let  $R = \{(2, 2), (3, 3), (4, 4), (1, 2)\}$  be a relation on  $A$ . Then  $R$  is  
 (a) Reflexive (b) Symmetric  
 (c) Transitive (d) None of these
21. Let  $R_1$  be a relation defined by  $R_1 = \{(a, b) | a \geq b, a, b \in R\}$ . Then  $R_1$  is  
 (a) An equivalence relation on  $R$   
 (b) Reflexive, transitive but not symmetric  
 (c) Symmetric, Transitive but not reflexive  
 (d) Neither transitive not reflexive but symmetric

22. Which one of the following relations on  $R$  is an equivalence relation  
 (a)  $aR_1b \Leftrightarrow |a| = |b|$   
 (b)  $aR_2b \Leftrightarrow a \geq b$   
 (c)  $aR_3b \Leftrightarrow a$  divides  $b$   
 (d)  $aR_4b \Leftrightarrow a < b$
23. If  $R$  is an equivalence relation on a set  $A$ , then  $R^{-1}$  is  
 (a) Reflexive only  
 (b) Symmetric but not transitive  
 (c) Equivalence  
 (d) None of these
24. Let  $R$  be a relation over the set  $N \times N$  and it is defined by  $(a,b)R(c,d) \Rightarrow a+d=b+c$ . Then  $R$  is  
 (a) Reflexive only  
 (b) Symmetric only  
 (c) Transitive only  
 (d) An equivalence relation
25. Let  $R = \{(3,3), (6,6), (9,9), (12,12), (6,12), (3,9), (3,12), (3,6)\}$  be a relation on the set  $A = \{3,6,9,12\}$ . The relation is  
 (a) An equivalence relation  
 (b) Reflexive and symmetric only  
 (c) Reflexive and transitive only  
 (d) Reflexive only
26. If  $f(x) = \frac{x}{x-1}$ , then  $\frac{f(a)}{f(a+1)} =$   
 (a)  $f(-a)$  (b)  $f\left(\frac{1}{a}\right)$   
 (c)  $f(a^2)$  (d)  $f\left(\frac{-a}{a-1}\right)$
27. If  $f(x) = \log\left[\frac{1+x}{1-x}\right]$ , then  $f\left[\frac{2x}{1+x^2}\right]$  is equal to  
 (a)  $[f(x)]^2$  (b)  $[f(x)]^3$   
 (c)  $2f(x)$  (d)  $3f(x)$
28. Let  $f : R \rightarrow R$  be defined by  $f(x) = 2x + |x|$ , then  $f(2x) + f(-x) - f(x) =$   
 (a)  $2x$  (b)  $2|x|$   
 (c)  $-2x$  (d)  $-2|x|$
29. If  $y = f(x) = \frac{ax+b}{cx-a}$ , then  $x$  is equal to  
 (a)  $1/f(x)$  (b)  $1/f(y)$   
 (c)  $yf(x)$  (d)  $f(y)$
30. The function  $f : R \rightarrow R, f(x) = x^2, \forall x \in R$  is  
 (a) Injection but not surjection  
 (b) Surjection but not injection  
 (c) Injection as well as surjection  
 (d) Neither injection nor surjection
31. Function  $f : R \rightarrow R, f(x) = x^2 + x$  is  
 (a) One-one onto (b) One-one into  
 (c) Many-one onto (d) Many-one into
32. Mapping  $f : R \rightarrow R$  which is defined as  $f(x) = \cos x, x \in R$  will be  
 (a) Neither one-one nor onto  
 (b) One-one  
 (c) Onto  
 (d) One-one onto
33. If  $f : R \rightarrow R$ , then  $f(x) = |x|$  is  
 (a) One-one but not onto  
 (b) Onto but not one-one  
 (c) One-one and onto  
 (d) None of these
34. Let  $f : N \rightarrow N$  defined by  $f(x) = x^2 + x + 1, x \in N$ , then  $f$  is  
 (a) One-one onto  
 (b) Many one onto  
 (c) One-one but not onto  
 (d) None of these
35. If  $g(f(x)) = |\sin x|$  and  $f(g(x)) = (\sin \sqrt{x})^2$ , then  
 (a)  $f(x) = \sin^2 x, g(x) = \sqrt{x}$   
 (b)  $f(x) = \sin x, g(x) = |x|$   
 (c)  $f(x) = x^2, g(x) = \sin \sqrt{x}$   
 (d)  $f$  and  $g$  cannot be determined
36. If  $f(x) = 3x + 10, g(x) = x^2 - 1$ , then  $(f \circ g)^{-1}$  is equal to  
 (a)  $\left(\frac{x-7}{3}\right)^{1/2}$  (b)  $\left(\frac{x+7}{3}\right)^{1/2}$   
 (c)  $\left(\frac{x-3}{7}\right)^{1/2}$  (d)  $\left(\frac{x+3}{7}\right)^{1/2}$
37. If  $f : R \rightarrow R$  and  $g : R \rightarrow R$  are defined by  $f(x) = 2x + 3$  and  $g(x) = x^2 + 7$ , then the values of  $x$  such that  $g(f(x)) = 8$  are  
 (a)  $1, 2$  (b)  $-1, 2$   
 (c)  $-1, -2$  (d)  $1, -2$
38. Which of the following function is invertible  
 (a)  $f(x) = 2^x$  (b)  $f(x) = x^3 - x$   
 (c)  $f(x) = x^2$  (d) None of these

39. If  $y = f(x) = \frac{x+2}{x-1}$ , then  $x =$
- (a)  $f(y)$  (b)  $2f(y)$   
(c)  $\frac{1}{f(y)}$  (d) None of these
40. The inverse of the function  $f(x) = \frac{e^x - e^{-x}}{e^x + e^{-x}} + 2$  is given by
- (a)  $\log_e \left( \frac{x-2}{x-1} \right)^{1/2}$  (b)  $\log_e \left( \frac{x-1}{3-x} \right)^{1/2}$   
(c)  $\log_e \left( \frac{x}{2-x} \right)^{1/2}$  (d)  $\log_e \left( \frac{x-1}{x+1} \right)^{-2}$
41. Which of the following function is inverse function
- (a)  $f(x) = \frac{1}{x-1}$  (b)  $f(x) = x^2$  for all  $x$   
(c)  $f(x) = x^2, x \geq 0$  (d)  $f(x) = x^2, x \leq 0$
42. Let  $f: \mathbb{R} \rightarrow \mathbb{R}$  be a function defined by  $f(x) = \frac{x-m}{x-n}$ , where  $m \neq n$ . Then
- (a)  $f$  is one-one onto  
(b)  $f$  is one-one into  
(c)  $f$  is many one onto  
(d)  $f$  is many one into
43. Which one of the following is a bijective function on the set of real numbers
- (a)  $2x-5$  (b)  $|x|$   
(c)  $x^2$  (d)  $x^2+1$
44. Let the function  $f: \mathbb{R} \rightarrow \mathbb{R}$  be defined by  $f(x) = 2x + \sin x, x \in \mathbb{R}$ . Then  $f$  is
- (a) One-to-one and onto  
(b) One-to-one but not onto  
(c) Onto but not one-to-one  
(d) Neither one-to-one nor onto
45.  $f(x) = x + \sqrt{x^2}$  is a function from  $\mathbb{R} \rightarrow \mathbb{R}$ , then  $f(x)$  is
- (a) Injective (b) Surjective  
(c) Bijective (d) None of these
46. Domain and range of  $f(x) = \frac{|x-3|}{x-3}$  are respectively
- (a)  $\mathbb{R}, [-1, 1]$  (b)  $\mathbb{R} - \{3\}, \{1, -1\}$   
(c)  $\mathbb{R}^+, \mathbb{R}$  (d) None of these
47. Domain of function  $f(x) = \sin^{-1} 5x$  is
- (a)  $\left( -\frac{1}{5}, \frac{1}{5} \right)$  (b)  $\left[ -\frac{1}{5}, \frac{1}{5} \right]$   
(c)  $\mathbb{R}$  (d)  $\left( 0, \frac{1}{5} \right)$
48. Domain of the function  $\log |x^2 - 9|$  is
- (a)  $\mathbb{R}$  (b)  $\mathbb{R} - [-3, 3]$   
(c)  $\mathbb{R} - \{-3, 3\}$  (d) None of these
49. If the domain of function  $f(x) = x^2 - 6x + 7$  is  $(-\infty, \infty)$ , then the range of function is
- (a)  $(-\infty, \infty)$  (b)  $[-2, \infty)$   
(c)  $(-2, 3)$  (d)  $(-\infty, -2)$
50. If  $f(x) = x^2 - 1$  and  $g(x) = 3x + 1$ , then  $(g \circ f)(x) =$
- (a)  $x^2 - 1$  (b)  $2x^2 - 1$   
(c)  $3x^2 - 2$  (d)  $2x^2 + 2$
51. If  $f(x) = |\cos x|$  and  $g(x) = [x]$ , then  $g \circ f(x)$  is equal to
- (a)  $|\cos [x]|$  (b)  $|\cos x|$   
(c)  $[|\cos x|]$  (d)  $[|\cos x|]$
52. **Assertion (A)** : A function  $f: \mathbb{Z} \rightarrow \mathbb{Z}$  defined as  $f(x) = x^3$  is injective.  
**Reason (R)** : A function  $f: A \rightarrow B$  is said to be injective if every element of  $B$  has a pre-image in  $A$ .
- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
53. **Assertion (A)** : A relation  $R = \{(a, (b): |a - b| < 3\}$  defined on the set  $A = \{1, 2, 3, 4\}$  is reflexive.  
**Reason (R)** : A relation  $R$  on the set  $A$  is said to be reflexive if for  $(a, b) \in R$  and  $(b, c) \in R$ , we have  $(a, c) \in R$ .
- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

54. Let  $P = \{1, 2, 3, 4\}$  &  $Q = \{1, 3, 5, 7\}$  then match the relations from P to Q in column I with their inverse relations given in column II.

Column I	Column II
A. $R = \{(1, 5), (2, 3), (3, 7)\}$	I. $R^{-1} = \{(7, 3), (1, 2), (5, 4)\}$
B. $R = \{(3, 1), (3, 5), (4, 3)\}$	II. $R^{-1} = \{(5, 3), (1, 3), (3, 4)\}$
C. $R = \{(1, 3), (2, 5), (4, 1)\}$	III. $R^{-1} = \{(5, 2), (3, 1), (1, 4)\}$
D. $R = \{(2, 1), (3, 7), (4, 5)\}$	IV. $R^{-1} = \{(7, 3), (3, 2), (5, 1)\}$

- (a) A-IV, B-II, C-III, D-I  
 (b) A-I, B-II, C-III, D-IV  
 (c) A-IV, B-III, C-II, D-I  
 (d) A-I, B-III, C-II, D-IV
55. Match the functions in column I with their composite functions in column II.

Column I	Column II
A. $f(x) = 2x, g(x) = x+1$	I. $(f \circ g)(x) = 2x + 2$
B. $f(x) = -x^2, g(x) = 2x+1$	II. $(f \circ g)(x) = -(2x+1)^2$
C. $f(x) = x^3+2, g(x) = x-2$	III. $(f \circ g)(x) = (x-2)^3 + 2$
D. $f(x) = 3x, g(x) = 9x-3$	IV. $(f \circ g)(x) = 27x - 9$

- (a) A-III, B-I, C-II, D-IV  
 (b) A-I, B-II, C-III, D-IV  
 (c) A-IV, B-III, C-II, D-I  
 (d) A-I, B-III, C-II, D-IV

**Question No. 56 to 60 are based on the given text. Read the text carefully and answer the questions :**

Sherlin and Danju are playing Ludo at home during Covid - 19. While rolling the dice, Sherlin's sister Raji observed and noted the possible outcomes of the throw every time belongs to set  $\{1, 2, 3, 4, 5, 6\}$ . Let A be the set of players while B be the set of all possible outcomes.  $A = \{S, D\}$ ,  $B = \{1, 2, 3, 4, 5, 6\}$

56. Let  $R : B \rightarrow B$  be defined by  $R = \{(x, y) : y \text{ is divisible by } x\}$  is
- (a) Not reflexive but symmetric and transitive  
 (b) Equivalence  
 (c) Reflexive and transitive but not symmetric  
 (d) Reflexive and symmetric and not transitive

57. Raji wants to know the number of functions from A to B. How many number of functions are possible?

- (a)  $6!$  (b)  $6^2$   
 (c)  $2^{12}$  (d)  $2^6$

58. Let R be a relation on B defined by  $R = \{(1,2), (2,2), (1,3), (3,4), (3,1), (4,3), (5,5)\}$ . Then R is:

- (a) Transitive (b) Reflexive  
 (c) None of these (d) Symmetric

59. Raji wants to know the number of relations possible from A to B. How many numbers of relations are possible?

- (a)  $2^{12}$  (b)  $6!$   
 (c)  $6^2$  (d)  $2^6$

60. Let  $R : B \rightarrow B$  be defined by  $R = \{(1,1), (1,2), (2,2), (3,3), (4,4), (5,5), (6,6)\}$ , then R is :

- (a) Symmetric  
 (b) Transitive and symmetric  
 (c) Reflexive and Transitive  
 (d) Equivalence

# CUET-UG

COMMON UNIVERSITY ENTRANCE TEST-UG

SAMPLE

# BUSINESS STUDIES



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BUSINESS STUDIES

# CHAPTER-1

## NATURE AND SIGNIFICANCE OF MANAGEMENT

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 Summary

## INTRODUCTION

Successful organisations do not achieve their goals by chance but by following a deliberate process called 'management'. The process by which organisational objectives are achieved is called 'management'.

Management is essential for all organisations big or small, profit or non-profit, services or manufacturing. Management is necessary so that individuals make their best contribution towards group objectives.

Management consists of a series of interrelated functions that are performed by all managers. The time spent by managers in different functions however is different. Managers at the top level spend more time planning and organising than managers at lower levels of the organisation.

### **1. CONCEPT**

Management is a widely used term that encompasses various activities involved in taking charge of different tasks within an enterprise. It is essential in any organisation where people work together. Regardless of the diverse tasks individuals perform, they all work towards a common goal. The purpose of management is to guide their efforts towards achieving this shared objective. To accomplish this, management ensures tasks are completed and goals are achieved effectively, utilising the least amount of resources at a minimum cost, thus emphasising efficiency.

#### **A. DEFINITION(S) OF MANAGEMENT**

"Management is the art of getting things done through others with formally organised groups."

**~ Harold Koontz**

"Management is the process of designing and maintaining an environment in which individuals, working together in groups, efficiently accomplish selected aims."

**~ Harold Koontz and Heinz Weihrich**

"Management is the process of working with and through others to effectively achieve organisational objectives by efficiently using limited resources in the changing environment."

**~ Kreitner**

Management is the process of achieving goals effectively and efficiently. Let's examine the key terms in this definition: process, effectively, and efficiently.

Process refers to the primary functions of management: planning, organising, staffing, directing, and controlling. These functions will be discussed further in this chapter.

Being effective means completing tasks and achieving goals. It involves doing the right tasks and obtaining desired results. However, effectiveness alone is not sufficient.

Efficiency is about doing tasks correctly and with minimum cost. It involves a cost-benefit analysis and the relationship between inputs and outputs. When more benefits are derived from fewer resources or when the same benefits are achieved with fewer resources and lower costs, efficiency increases.

The input resources for a task include money, materials, equipment, and personnel. Management aims to utilise these resources efficiently to reduce costs and maximise profits.

## **B. EFFECTIVENESS VERSUS EFFICIENCY**

Effectiveness and efficiency are two important concepts in management that are interconnected but distinct. Both effectiveness and efficiency are essential for successful management practices. Effectiveness refers to the ability to achieve goals and objectives, while efficiency focuses on achieving those goals with minimum resources and costs.

In some situations, a manager may prioritise effectiveness over efficiency, which can result in higher costs. For example, if a company has a target production of 5000 units in a year and the manager decides to operate on double shifts to meet the target despite frequent power failures, the production goal is achieved but at a higher production cost. In this case, the manager was effective but not efficient, as more inputs such as labour and electricity were used for the same output.

Conversely, a business may focus too much on efficiency by reducing costs and using fewer resources, but this could lead to a failure in achieving the production targets. When goods do not reach the market as a result, demand declines, and competitors enter the market. This situation illustrates being efficient but not effective, as the goods did not reach the intended market.

Therefore, it is crucial for management to strike a balance between effectiveness and efficiency. The goal is to achieve objectives effectively while utilising resources efficiently. Typically, high efficiency is associated with high effectiveness, which is the desired outcome for managers. However, it is important to avoid excessive emphasis on efficiency without considering effectiveness, as this can lead to poor management characterised by both inefficiency and ineffectiveness.

### **Difference Between Effectiveness and Efficiency**

<b>Basis</b>	<b>Effectiveness</b>	<b>Efficiency</b>
<b>Meaning</b>	It refers to the process of completing the assigned task within the given time frame.	It refers to completing the assigned task with minimum wastage and at a minimum cost.
<b>Objective</b>	To achieve the targets on time.	Optimum use of resources at minimum cost.
<b>Main element</b>	Time	Cost

## **2. CHARACTERISTICS OF MANAGEMENT**

After going through some of the definitions we find some elements that may be called the basic characteristics of management:

1. **Goal-Oriented Process:** Every organisation has specific goals that drive its existence. These goals should be simple and clearly stated. For example, a retail store aims to increase sales, while The Spastics Society of India focuses on imparting education to children with special needs. Management aligns the efforts of individuals within the organisation to achieve these goals.
2. **All Pervasive:** The activities involved in managing an enterprise are common to all types of organisations, whether they are economic, social, or political. Regardless of the country or industry, management principles remain the same. However, the way management is practised may vary due to cultural, traditional, and historical differences.
3. **Multidimensional:** Management involves three main dimensions:

- a. **Management of work:** All organisations exist to perform specific work. Management translates this work into goals and assigns the necessary means to achieve them, such as problem-solving, decision-making, planning, budgeting, responsibility assignment, and delegation of authority.
- b. **Management of people:** People are an organisation's greatest asset. Managing people entails addressing individual needs and behaviours, as well as working with individuals as a group to achieve organisational goals. Managers must make the most of employees' strengths and minimise their weaknesses.
- c. **Management of operations:** Every organisation provides a product or service to survive. This requires a production process that involves input material flow and technology to transform it into the desired output. Operations management is closely linked to both work management and people management.
4. **Continuous Process:** Management involves a series of continuous functions, including planning, organising, directing, staffing, and controlling. All managers perform these functions simultaneously and regularly, depending on the specific needs of the organisation.
5. **A Group Activity:** Organisations consist of diverse individuals with different needs. While each member may have their own individual purpose for joining the organisation, they work together towards achieving common organisational goals. This requires teamwork and coordination of individual efforts in a unified direction. Additionally, management should facilitate the growth and development of its members as needs and opportunities evolve.
6. **A Dynamic Function:** Management needs to adapt to the changing environment. Organisations interact with various social, economic, and political factors in their external environment. To succeed, an organisation must adjust itself and its goals according to the needs of the environment. For example, McDonald's made significant changes to its menu to cater to the Indian market.
7. **Intangible Force:** Although management cannot be seen, its impact can be felt in the way an organisation functions. Effective management is reflected in the achievement of targets, employee satisfaction, and the presence of orderliness within the organisation.

### **3. OBJECTIVES OF MANAGEMENT**

Management seeks to achieve certain objectives which are the desired result of any activity. They must be derived from the basic purpose of the business. In any organisation, there are different objectives and management has to achieve all objectives in an effective and efficient manner. Objectives can be classified into organisational objectives, social objectives and personal or individual objectives.

1. **Organisational Objectives:** Organisational Objectives are those objectives that are set by the management of an organisation within a predetermined time period. An organisation has different types of objectives to be achieved, these objectives are determined in consideration of the different interests of the stakeholders. The main objective of an organisation is the optimum utilisation of resources in the most effective and efficient manner. It is further divided into three parts- survival, profit and growth.
  - a. **Survival:** Ensuring survival in the market in the long run by taking positive decisions in respect of business activities is the primary objective of management. Earning enough revenue to cover the cost of production is of utmost importance to an organisation.
  - b. **Profitability:** Any person or individual who runs a business has the ultimate objective of earning profit. Management ensures it earns sufficient profit to meet its various needs. Management makes the best use of men, money, material, machinery and other resources

in order to earn profit. A good amount of profit provides a better return to investors in terms of dividend, interest etc.

- c. **Growth:** Management should aim towards continuously improving the performance of the organisation. It is the general objective of management to secure maximum results through minimum resources to increase prosperity and growth. The growth of an organisation can be measured in various ways and depending upon various parameters. The growth indicators can vary from organisation to organisation. Some may consider an increase in sales volume, some may look for an increasing number of products, etc.
2. **Social Objectives:** Any organisation that operates, doesn't solely have an objective of profit-making. It also has some social obligations or social objectives to fulfil towards society. This may differ from organisation to organisation. For example, Some aim at providing basic infrastructure to the people living around them, some aim at providing maximum employment, and some aim at producing products that are environmentally friendly.
3. **Personal Objectives:** Each and every individual joins an organisation for pursuing their personal objectives. Some join for a good package salary, some join for greater recognition, and some just for survival. So, this depends from individual to individual. It is important for an organisation to identify personal objectives to integrate them with the organisational objectives to bring harmony to the organisation.

#### **4. IMPORTANCE OF MANAGEMENT**

Management is crucial for the success of any organisation. Here are some reasons that highlight its significance:

1. **Achievement of group goals:** Management plays a vital role in guiding individual efforts towards the overall goals of the organisation. A manager provides a common direction, ensuring that everyone is working towards the same objective.
2. **Increased efficiency:** Managers strive to enhance productivity and reduce costs through effective planning, organising, directing, staffing, and controlling of organisational activities. This focus on efficiency helps in achieving better results.
3. **Creation of a dynamic organisation:** Organisations operate in a constantly changing environment. Often, individuals resist change as it involves moving away from the familiar and secure. Management helps people adapt to these changes, enabling the organisation to maintain a competitive edge.
4. **Achievement of personal objectives:** A good manager motivates and leads their team in a way that allows individuals to achieve personal goals while contributing to the overall organisational objective. Through effective motivation and leadership, management fosters team spirit, cooperation, and commitment to group success.
5. **Contribution to society's development:** Organisations have multiple objectives that cater to the needs of various groups. In fulfilling these objectives, management contributes to the development of the organisation and, in turn, to society as a whole. It involves providing high-quality products and services, creating employment opportunities, adopting new technologies for the benefit of people, and driving growth and development.

#### **5. NATURE OF MANAGEMENT**

Management has evolved over time, it has become very dynamic in modern times. Earlier it was based on a set of rules and regulations or we may state them as conventions that evolve slowly and gradually as per the ever-changing needs.

Management can be an art, science or a profession.

## **5.1 MANAGEMENT AS AN ART**

Art can be described as a systematic body of knowledge that demands skill, creativity, and practice to achieve perfection. In management, the following main features of art can be observed:

1. **Theoretical knowledge:** Art involves structured and organised study material to acquire theoretical knowledge. Similarly, management possesses a systematic body of knowledge that aids in acquiring managerial studies. For instance, various books on music offer theoretical knowledge, while management has its own organised knowledge base.
2. **Personalised application:** In art, theoretical knowledge alone is insufficient. Artists must possess personal skills and creativity to apply that knowledge. For example, musicians learn the same musical scales (rages), but they apply them differently based on their personal skills and creativity. Similarly, managers learn the same management theories and principles, but their efficiency relies on how effectively they apply these principles using their personal skills and creativity.
3. **Practice and creativity-based:** Artists refine their skills through regular practice, striving for improvement and perfection. Without practice, artists may lose their proficiency. Art demands creative practice, where artists incorporate their creativity into the theoretical knowledge they have acquired. Similarly, managers enhance their managerial skills and efficiency through experience. They continuously improve by applying their knowledge creatively.

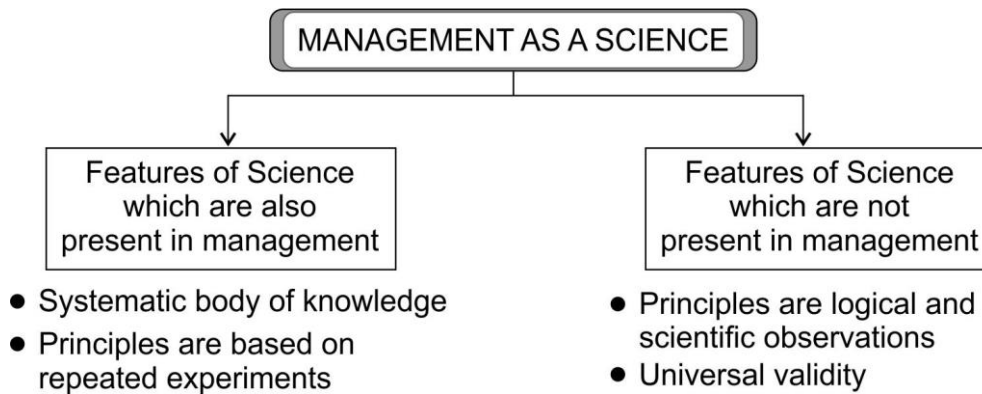
**Conclusion:** When comparing the features of art with management, we find that management encompasses all the features of art. Therefore, we can refer to management as the art of accomplishing tasks through others.

## **5.2 MANAGEMENT AS A SCIENCE:**

Science is a systematic and organised body of knowledge based on observed findings, facts, and events. It consists of exact principles that can be verified and establish cause-and-effect relationships. There are three main characteristics/features of science:

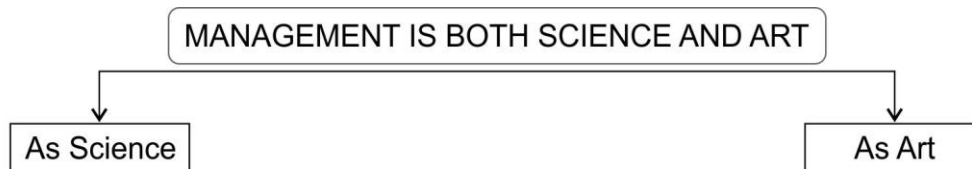
1. **Systematic body of knowledge:** Science involves organised and systematic study material to acquire knowledge. Similarly, management also has systematic and organised study material available.
2. **Principles based on experimentation:** Scientists test and experiment with principles before establishing them. Likewise, managers also test and experiment with managerial principles under different conditions in various organisations.
3. **Universal validity:** Scientific principles have universal application and validity. However, management principles are not exactly like scientific principles, so their application and use are not universal. They need to be modified according to specific situations.

**Conclusion:** Comparing the features of science with management, we find that two features of science are present in management, while two are not. Therefore, management cannot be considered a pure or exact science, but it can be classified as an inexact science or social science.



### 5.3 MANAGEMENT: BOTH SCIENCE AND ART

Management is both science as well as art. Like science, it has a systematic and well-organised body of knowledge and like art, it requires personal skill, creativity and practice to apply such knowledge in the best possible way. Science and art are not in contrast to each other; both exist together in every function of management.



1. Systematic body of knowledge
2. Principles are based on repeated experiments

1. Systematic body of knowledge
2. Personalised application
3. Based on practice and creativity

### 5.4 MANAGEMENT AS A PROFESSION

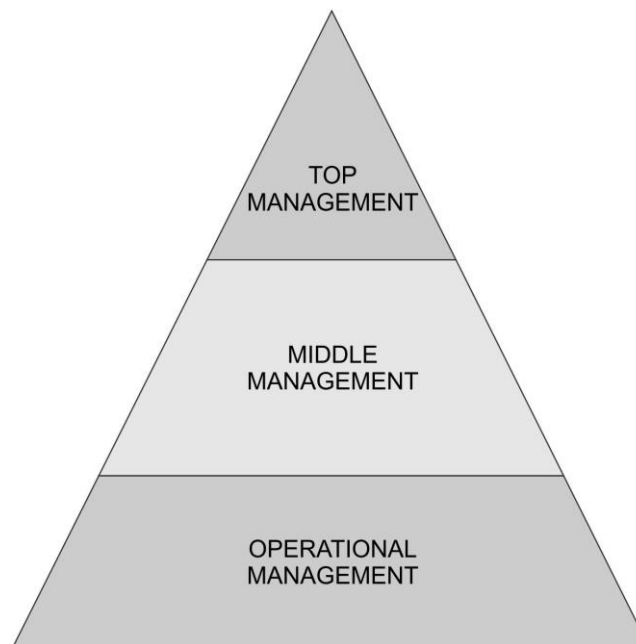
Profession refers to an occupation supported by specialised knowledge and training, with restricted entry. Here are the main features of a profession:

1. **Well-defined body of knowledge:** Every profession involves a systematic body of knowledge that enables professionals to acquire specialised expertise. Management also has a structured body of knowledge, with numerous books available on the subject. Scholars study various business situations and develop new principles to address them.
2. **Restricted entry:** Professions usually require passing an examination or obtaining a specific degree for entry. For instance, becoming a doctor requires an MBBS degree. While there is currently no legal restriction on managerial appointments, an MBA degree is increasingly preferred by many companies. Soon, statutory regulations may be introduced to make it mandatory.
3. **Professional associations:** Professions have dedicated associations that professionals must register with before practising. Doctors register with the Medical Council of India, lawyers with the Bar Council of India, and so on. In management, national and international management associations exist, such as AIMA in New Delhi. However, it is currently not compulsory for managers to register with these organisations.
4. **Existence of ethical codes:** Professions have established ethical codes that all professionals must adhere to. In management, there is a growing emphasis on ethical behaviour. AIMA, for example, has devised a code of conduct for Indian managers. Currently, it is not mandatory for all managers to register with AIMA or follow ethical codes.

5. **Service motive:** Professions are driven by a commitment to serving clients. Lawyers ensure their clients receive justice, for instance. In management, the primary aim is to assist organisations in achieving their goals, which often includes profit maximisation. While this service motive may not be fully applicable to management, there is an increasing focus on social recognition and status for managers.

**Conclusion:** Comparing the features of a profession with management, we find that not all the features of a profession are currently present in management. However, in the near future, these features may be included with statutory backing. Although management is not presently recognized as a full-fledged profession like medicine or law, there is a growing trend towards professionalisation, driven by managers' desire for social status and recognition.

## 6. LEVELS OF MANAGEMENT



### 6.1 TOP-LEVEL MANAGEMENT

Top-level management includes the Board of Directors, Chief Executive Officer (CEO), and similar high-ranking officers. The CEO may be a single person or a committee of officers. They have full management authority and are accountable to the company's owners or shareholders.

Top-level management performs the following functions:

1. **Determining Objectives:** They set objectives for the organisation, such as achieving a sales target of Rs. 1,000 crores in the following year.
2. **Determining Policies:** They formulate policies related to the realisation of objectives, for example, a company's sales policy of only accepting cash sales.
3. **Determining Activities:** They decide on different activities required for the fulfilment of objectives, such as sales, purchase, advertisement, production, and research.
4. **Assembling Resources:** They arrange necessary resources for achieving the objectives, including capital, raw materials, and fixed assets.
5. **Controlling the Work Performance:** They closely monitor work progress to achieve desired results.
6. **Approving Budgets:** They approve budgets prepared by different managers.

## 6.2 MIDDLE-LEVEL MANAGEMENT

Middle-level management is positioned between top-level and lower-level management. It includes divisional heads, departmental heads, deputy departmental heads, plant superintendents, and functional managers.

Middle-level managers perform the following functions:

1. **Interpreting policies:** They interpret policies framed by top-level managers. For example, the marketing manager may introduce the sales policy of the company to the salesman, such as no-cost credit sales.
2. **Preparing organisational set-up:** They prepare an outline of their respective department in accordance with the organisation's objectives.
3. **Appointing employees:** They appoint employees to fulfil the activities of their department.
4. **Issuing instructions:** They direct their subordinates about what to do and how to do it. They make resources available to subordinates to help them complete their assigned tasks.
5. **Motivating employees:** They motivate their employees through various means to work most efficiently and achieve organisational objectives.
6. **Creating cooperation:** They create cooperation among different divisions to achieve company objectives successfully.

## 6.3 LOWER-LEVEL MANAGEMENT

Lower-Level Management, also known as Supervisory Management, includes first-line managers and supervisors. Their functions include

1. **Resolving worker grievances:** Lower-level managers are in direct contact with employees and can handle ordinary problems themselves. They submit serious grievances to middle-level management.
2. **Ensuring proper working environment:** They ensure proper arrangements for water, electricity, ventilation, and cleanliness at the workplace to increase efficiency.
3. **Ensuring the safety of workers:** Lower-level managers can reduce the probability of accidents by building fences around machines.
4. **Helping middle-level management:** They assist middle-level managers in recruiting, training, and promoting employees.
5. **Inviting suggestions:** They seek suggestions from subordinates on how to improve work quality.
6. **Creating better human relations:** They promote better human relations to avoid conflicts at the workplace.

## 7. FUNCTIONS OF MANAGEMENT

Management is the process of planning, organising, directing, and controlling organisational efforts and resources to achieve specific goals.

1. **Planning** involves setting goals in advance and developing an efficient and effective way to achieve them. For example, Suhasini's organisation focuses on procuring and selling traditional Indian handloom and handicraft items. She plans the quantities, variety, colour, and texture of the products and allocates resources for their purchase or in-house development. Planning also includes predicting and preparing contingency plans for potential problems.

2. **Organising** assigns duties, groups tasks, establishes authority, and allocates resources needed to implement a specific plan. It determines the required activities and resources, identifies who will perform specific tasks, and where and when they will be done. Organisational techniques improve work efficiency and effectiveness. Different business structures are needed based on the nature of work.
3. **Staffing** involves finding the right people with the right qualifications for the right job. This includes recruitment, selection, placement, and training of personnel. For example, Infosys Technologies requires systems analysts and programmers, while Fabmart needs designers and craftspeople.
4. **Directing** involves leading, influencing, and motivating employees to perform assigned tasks. It requires creating an encouraging work environment and using motivation and leadership techniques. Suhasini praised her design team's efforts and suggested keeping expensive silk bed covers for special occasions while offering affordable cotton bedcovers regularly.
5. **Controlling** monitors organisational performance towards goals. It establishes performance standards, measures current performance, compares it with standards, and takes corrective action when necessary. Managers determine critical activities and outputs, measurements, and authority for corrective action. For instance, Suhasini changed the fabric of bedcovers when she discovered they were more expensive than planned.

Managers perform these functions in an interrelated manner, making it challenging to separate one from the other. For example, a manager first plans, then organises, staff positions, directs employees, and finally controls performance.

## **8. COORDINATION - THE ESSENCE OF MANAGEMENT**

"Coordination is the essence of management for the achievement of harmony of individual efforts towards the accomplishment of group goals."

~ **Koontz and O'Donnell.**

"Coordination is balancing and keeping together the team by ensuring suitable allocation of tasks to the various members and seeing that the tasks are performed with harmony among the members themselves."

~ **E.F.L. Brech**

"Coordination is the process whereby an executive develops an orderly pattern of group efforts among his subordinates and secures unity of action in the pursuit of common purpose."

~ **McFarland**

### **A. NATURE/CHARACTERISTICS OF COORDINATION**

Coordination is an important aspect of management that ensures the smooth functioning of an organisation. Here are the key characteristics of coordination:

1. **Integration of group efforts:** Coordination brings together the efforts of individuals and groups towards a common goal. It aligns diverse interests and unifies them into purposeful work activities. For example, the production and sales departments need to coordinate their work to ensure that production meets market demand.
2. **Unity of action:** The primary purpose of coordination is to achieve unity of action in the pursuit of organisational goals. It acts as a binding force between departments and ensures that all actions are directed towards common objectives. For instance, a fashion designer needs to

coordinate with the marketing department to synchronise the production and promotion of a new collection.

3. **Continuous process:** Coordination is not a one-time activity but an ongoing process that starts during the planning stage and continues until controlling. It involves ensuring the availability of necessary resources, monitoring progress, and making adjustments as required. For instance, a designer plans for the winter collection well in advance and continuously monitors the production process to meet the deadlines.
4. **All-pervasive function:** Coordination is needed at all levels of management due to the interdependence of departmental activities. It integrates the efforts of different departments and levels within the organisation. For example, in a clothing manufacturing company, coordination is necessary between the purchase, production, and sales departments to maintain a smooth flow of operations.
5. **Responsibility of all managers:** Coordination is not limited to a particular managerial level; it is the responsibility of all managers within an organisation. Top-level managers coordinate with subordinates to ensure the implementation of overall policies. Middle-level managers coordinate with both top-level and first-line managers, while operational-level managers coordinate the activities of workers.
6. **Deliberate function:** Coordination requires conscious and deliberate efforts from managers. It provides direction to cooperation among employees and prevents wasted efforts. Without coordination, there can be overlapping and chaos instead of harmony and integration of activities.

In conclusion, coordination is an essential function of management that integrates group efforts, ensures unity of action, and is a continuous and all-pervasive process. It is the responsibility of all managers and plays a vital role in achieving organisational objectives effectively and efficiently.

## **B. WHY COORDINATION IS KNOWN AS THE ESSENCE OF MANAGEMENT?**

Coordination is considered the essence of management due to its crucial role in achieving unity of action and integrating different activities within an organisation. Here are the key reasons why coordination holds such significance:

1. Coordination is essential for all management functions:
  - a. **Planning:** Coordination is required to align the main plan with supportive plans from various departments.
  - b. **Organising:** Coordination ensures harmony among different organisational resources and establishes a link between authority, responsibility, and accountability.
  - c. **Staffing:** Coordination ensures a match between individuals' skills and job assignments, as well as between efficiency and compensation.
  - d. **Directing:** Coordination facilitates effective communication between superiors and subordinates, including the transmission of orders, instructions, guidelines, and suggestions.
  - e. **Controlling:** Coordination helps maintain the synchronisation between actual performance and established standards.
2. Coordination is needed at all levels of an organisation:
  - a. **Top-level:** Coordination integrates all organisational activities and channels the efforts of individuals towards common objectives.

- b. **Middle-level:** Coordination balances the activities of different departments to ensure their seamless functioning as a unified entity.
  - c. **Lower-level:** Coordination integrates the activities of workers, enabling them to work together towards the achievement of organisational goals.
3. Coordination is vital for organisational success:
- a. Lack of coordination can severely impact a company's survival and long-term success.
  - b. Example: Allwyn Company, a leading electronic industry established in 1942, initially experienced success by producing double-decker buses and excelling in the refrigeration industry. However, by the late 1980s, the company encountered coordination problems, leading to significant losses. The lack of balance and integration among different activities resulted in an accumulated loss of 168 crore by 1993. This failure to coordinate departmental activities and product portfolios illustrates that efficient coordination is essential for a company to function effectively and generate profits.

In summary, coordination plays a vital role in achieving unity, aligning organisational activities, and ensuring success. Without effective coordination, a company cannot operate efficiently or sustain profitability in the long run.

### **C. IMPORTANCE OF COORDINATION**

The need and significance of coordination can be understood through the following reasons:

1. **Growth in size:** As businesses expand, the number of employees increases. These individuals have diverse interests, work methods, objectives, and levels of tolerance. However, despite these differences, they must work together as a cohesive group to achieve organisational goals. Establishing coordination is crucial in creating a conducive environment where everyone can contribute effectively.
2. **Functional differentiation:** Departments within an organisation may have conflicting interests. Such conflicts hinder the achievement of organisational goals. The key to avoiding clashes is to establish proper coordination between departments.
3. **Specialisation:** Organisations divide main activities into sub-activities assigned to experts in their respective fields to benefit from specialisation. Each individual tends to focus on their own tasks without considering the overall work to be done. In order to ensure the successful completion of these activities, it is essential to establish coordination among team members. Through coordination, individuals can effectively complete their tasks on time while considering the overall work.

In summary, coordination plays a vital role in managing the growth of businesses, resolving conflicts between departments, and ensuring the successful completion of specialised tasks.

## **SUMMARY**

1. Concept Management is the process of planning, organising, staffing, directing, and controlling the enterprise resources efficiently and effectively for achieving the goals of the organisation. Effectiveness in management is concerned with doing the right task, completing activities, and achieving goals. Efficiency means doing the task correctly and with minimum cost.

### 2. **Characteristics of Management**

The key features of management are:

- Goal-oriented process
- All-pervasive
- Multidimensional
- Continuous process
- Group activity
- Dynamic function
- Tangible force

### 3. **Objectives of Management**

Management fulfils three basic objectives: organisational, social, and personal.

### 4. **Importance of Management**

Management is important because it helps in achieving group goals, increases efficiency, creates a dynamic organisation, helps achieve personal objectives, and contributes to the development of society.

### 5. **Nature of Management**

Management is a combination of an organised body of knowledge (science) and its skilful application (art). Although it does not satisfy all the requirements of a profession, it is to a large extent professional in character.

### 6. **Levels of Management**

Management is considered a three-tier activity. The top management focuses on the determination of objectives and policies, middle management attempts to achieve these objectives through the effort of other managers, and supervisory or operational management directly oversees the efforts of the workforce.

### 7. **Functions Of Management**

All managers perform the following interrelated functions: Planning, Organizing, Staffing, Directing, and Controlling.

### 8. **Coordination - The Essence Of Management**

Coordination is the essence of management. It is the process of achieving unity of action among interdependent activities and departments of an organisation.

**PRACTICE EXERCISE**

1. Which of the following statement best explains the Management is an Art?  
(a) Management has drawn its knowledge from other disciplines also.  
(b) No formal qualification is required for the appointment as a manager in a company.  
(c) Outcomes of managerial actions cannot be predicted accurately.  
(d) Two managers deal with the same problem differently.
2. Organising as a function of management involves deciding:  
(a) Who will do a particular task  
(b) All of these  
(c) What activities and resources are required  
(d) Where will it be done
3. Which is not an organisational/economic objective of management out of the following?  
(a) Earning Profits  
(b) Growth of the organisation  
(c) Survival of the organisation  
(d) Providing employment
4. People in the organisations carry out diverse tasks with the aim to achieve:  
(a) Different objectives  
(b) Common objectives  
(c) Individual objectives  
(d) Both different and common objectives
5. To meet the objectives of the firm, the management of Bhavya Ltd. offers employment to physically challenged persons. Identify the organisational objective it is trying to achieve.  
(a) Growth (b) Profit  
(c) Social (d) Survival
6. Identify the level of management which does not interact with the workforce directly.  
(a) Middle-level management  
(b) Operational management  
(c) First line managers  
(d) Supervisory management
7. In which two functions of management do managers at the top level spend more time than managers at lower level of the organisations?  
(a) Planning and Organising  
(b) Planning and Controlling  
(c) Planning and Directing  
(d) Planning and Staffing
8. Management is both Science and Art. Science can be defined as \_\_\_\_\_.  
(a) None of these  
(b) Systematised body of knowledge  
(c) How to apply knowledge  
(d) Restricted Entry
9. Which of the following feature of management states that the management functions cannot be performed in isolation?  
(a) Management is a group activity.  
(b) Management is a continuous process.  
(c) Management is a goal-oriented process.  
(d) Management is all pervasive.
10. The level of management serves as a link between top-level managers and first-line managers:  
(a) Operational management  
(b) Floor-level management  
(c) Supervisory level management  
(d) Middle-level management
11. Which of the following is not an importance of management?  
i. Management increases efficiency  
ii. Management helps achieving individual goals only  
iii. Management creates a dynamic organisation  
iv. Both (i) and (iii)  
(a) Option (ii) (b) Option (i)  
(c) Option (iii) (d) Option (iv)
12. All management practices are based on the same set of principles; what distinguishes a successful manager from a less successful one is the ability to put these principles into practice. Identify the nature of management highlighted above.  
(a) Management is both art and science  
(b) Management as a science  
(c) Management as an art  
(d) Management as a profession
13. Name the process of designing and maintaining an environment in which individuals working together in groups efficiently accomplish selected aims.  
(a) Organising (b) Management  
(c) Directing (d) Coordination

14. Which level of management is responsible to ensure their department has the necessary personnel?  
(a) Supervisory level (b) Operational level  
(c) Top-level (d) Middle level
15. Human Resource Department of any organisation has to ensure the adequate number of employees available throughout the organisation. At which level a human resource manager works?  
(a) Top-level management  
(b) Middle-level management  
(c) All of these  
(d) Operational management
16. Co-ordination is considered to be the essence of management because:  
i. It is a common thread that runs through all the activities within the organisation  
ii. It is implicit and inherent in all functions of the organisation  
iii. It is a force that binds all the functions of management  
(a) Only ii (b) All of these  
(c) Only i (d) Only iii
17. Under what function of management does the determining of the structure of roles fall?  
(a) Controlling (b) Directing  
(c) Planning (d) Organising
18. Ram is working as a superintendent in a factory. State the level of management at which he is working.  
(a) Middle level  
(b) Top level  
(c) Administrative level  
(d) Supervisory level
19. Management has to adapt itself according to the changing environment. Which characteristic of management is highlighted in the above statement?  
(a) Goal-oriented  
(b) Continuous process  
(c) Dynamic function  
(d) Group activity
20. The main objective of any organisation should be to utilise human and material resources to the maximum possible advantage. The above lines highlight which of the following objectives of management?  
(a) Both Social objectives and Personal objectives  
(b) Personal objectives  
(c) Organisational objectives  
(d) Social objectives
21. The function of management related to grouping of activities to be carried out into departments and creating management hierarchy is:  
(a) Directing (b) Controlling  
(c) Organising (d) Planning
22. Which of the following is not a function of management?  
(a) Planning (b) Controlling  
(c) Staffing (d) Coordination
23. Organisational objective is not concerned with:  
(a) Growth  
(b) Survival  
(c) Profit  
(d) Supply of quality goods
24. AN Stationery Ltd. is manufacturing various items of stationery like pencils, erasers, gel-pens, ball-pens, etc. The Production Manager, Ghanshyam is very particular about the efficiency of production, which he measures by counting the number of pieces produced and number of defective pieces in a batch. By doing this he is performing an important function of management which is:  
(a) Planning (b) Controlling  
(c) Organising (d) Directing
25. Which of the following is not a part of the importance of management- Management helps in the development of society?  
(a) It adopts new technology for the greater good of the people.  
(b) It creates employment opportunities.  
(c) None of these  
(d) It helps to provide good quality products and services.
26. Management is a/an:  
(a) Art (b) Science  
(c) Profession (d) All of these
27. Vinod Limited target production was 22,000 units in a year. The production manager was able to cut down the cost but could not achieve the target. In this case, manager is:  
(a) Effective but not efficient  
(b) Efficient but not effective  
(c) Efficient but not honest  
(d) Effective and efficient

28. Which of the following is not a designation related to middle-level management?  
(a) Divisional Manager  
(b) Sales Manager  
(c) Operations Head  
(d) Chief Operating Officer
29. Akash works as a production manager in Elite Enterprises manufacturing LED lights. Due to festive season, there is lot of demand for their lights. Akash was given the task of producing 100 units of LED lights @ ₹ 200 per unit within 5 days for an urgent order. Akash was able to achieve the target of 100 units of LED lights within 5 days @ ₹ 220 per unit. Identify from the following whether Akash is:  
(a) Neither efficient nor effective  
(b) Efficient only  
(c) Effective only  
(d) Both efficient and effective
30. At which level of management the managers are responsible for the welfare and survival of the organisation?  
(a) Middle Level Management  
(b) All of these  
(c) Operational Management  
(d) Top Level Management
31. Management is directly concerned with:  
(a) Management of Money only  
(b) Management of Production and sales  
(c) Management of People  
(d) Management of Responsibilities
32. Neeraj is the Director of Tulip Public School having 2000 students. There are two Headmasters - one for Senior classes and another for Junior classes. 50 teachers are under the supervision of the Senior Headmaster and 60 teachers under the supervision of the Junior Headmaster. No teacher working under the supervision of the Senior Headmaster is happy and satisfied, which is affecting the result of the Senior classes. On the other hand the teachers working under the supervision of the Junior Headmaster are performing their duties willingly and achieving their objectives. All the teachers are happy and satisfied. The Director, Neeraj can feel how nicely the Junior Headmaster was managing his classes. The characteristic of management discussed above is:  
(a) Management is a continuous process  
(b) Management is a dynamic function  
(c) Management is an intangible force  
(d) Management is a goal-oriented process
33. It acts as the binding force between departments and ensures that all action are aimed at achieving the goals of the organization. The statement highlights the following characteristic of co-ordination:  
(a) Co-ordination is an all pervasive function.  
(b) Co-ordination is a continuous process.  
(c) Co-ordination is the responsibility of all managers.  
(d) Co-ordination ensures unity of action.
34. Which of the following points supports the fact that Management is a profession?  
(a) Principles based on experimentation  
(b) Based on practice and creativity  
(c) Personalised application  
(d) Service motive
35. Management contains a series of interrelated functions that include:  
(a) Organising (b) Planning  
(c) Directing (d) All of these
36. The principles of physics and chemistry are stable. What is your opinion about management?  
(a) Unstable  
(b) None of these  
(c) No principle is available  
(d) Stable
37. What out of the following has been called the essence of management?  
(a) Communication (b) Supervision  
(c) Leadership (d) Coordination
38. The process of management which synchronises the activities of different departments in an orderly manner is:  
(a) Planning (b) Staffing  
(c) Controlling (d) Coordination
39. In order to become a lawyer one has to register himself as a member of the Bar Council of India. Which feature of the profession is being revealed?  
(a) Professional association  
(b) Restricted entry  
(c) Service motive  
(d) Ethical code of conduct

40. When an organization is concerned about the personal growth and development of employees which management objective is highlighted?

- (a) Social objective
- (b) Organizational objective
- (c) Personal objective
- (d) Growth objective

41. Management ensures:

- (a) Maintaining profit
- (b) Providing employment opportunities
- (c) Control on cost
- (d) Maximum utilisation of resources

42. Profit is essential for covering the cost and risk of the business. Which management objective is discussed here?

- (a) Personal objective
- (b) Individual objective
- (c) Social objective
- (d) Organizational objective

43. The following is not an objective of management:

- a. earning profits
- b. growth of the organisation
- c. providing employment
- d. policy making

- (a) Option (d)                      (b) Option (b)
- (c) Option (c)                      (d) Option (a)

44. If a manager is able to achieve the target production of 7,000 units but at a higher cost, then what will he be considered as?

- (a) Only efficient but not effective
- (b) Both efficient and effective
- (c) Only efficient
- (d) Only effective

45. Match the following:

(a) Supervisory level management are also known as	(i) Level of management
(b) It is series of managerial positions from top to bottom	(ii) Top-level management
(c) It consist of members at the highest level in the management hierarchy	(iii) Middle-level management
(d) To select and appoint employees	(iv) First line managers

- (a) - (iv), (b) - (i), (c) - (ii), (d) - (iii)

- (b) - (ii), (b) - (iv), (c) - (i), (d) - (iii)
- (c) - (iv), (b) - (ii), (c) - (i), (d) - (iii)
- (d) - (i), (b) - (iv), (c) - (ii), (d) - (iii)

46. Match the following:

(a) Continuous	(i) Everywhere
(b) Dynamic	(ii) Group effort
(c) Group activity	(iii) Keep on changing
(d) Pervasive	(iv) Never ending process

- (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)
- (b) - (i), (b) - (iii), (c) - (ii), (d) - (iv)
- (c) - (iii), (b) - (iv), (c) - (ii), (d) - (i)
- (d) - (ii), (b) - (i), (c) - (iii), (d) - (iv)

47. Match the following:

(a) Systematic body of knowledge	(i) Applying personal skills and creativity
(b) Based on repeated experiments	(ii) To acquire theoretical knowledge
(c) Personalised application	(iii) Regular practice for perfection
(d) Based on practice	(iv) Managers also test & experiment managerial principles under different conditions

- (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii)
- (b) - (iv), (b) - (ii), (c) - (i), (d) - (iii)
- (c) - (iii), (b) - (iv), (c) - (ii), (d) - (iii)
- (d) - (ii), (b) - (i), (c) - (iv), (d) - (iii)

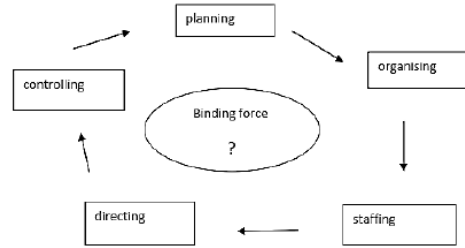
48. **Assertion (A):** Management is a dynamic function and has to adapt itself to the changing environment.

**Reason (R):** The effect of management is noticeable in an organisation where targets are met according to plans.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false but R is true.

49. **Assertion (A):** The Top Level Management acts as a liaison with the outside world.  
**Reason (R):** Supervisors and Superintendents are part of Top Level Management of an organisation.  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
50. **Assertion (A):** Management function cannot be physically seen but its presence can be felt.  
**Reason (R):** Management always refers to a group of people involved in managerial activities.  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
51. **Assertion (A):** Individual Objectives, related to the employees of the organization are one of the most important objectives of any organisation.  
**Reason (R):** Satisfied and motivated employees contribute to the maximum for the organisation.  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
52. **Assertion (A):** Special Associations have been established for all the professions and every professional has to get himself registered with his respective association.  
**Reason (R):** Currently, It is legally compulsory for all managers to get themselves registered with the All India Management Association (AIMA).  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

53. It is not a separate function of management but its very essence. Identify it.



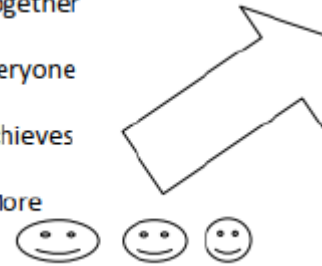
- (a) Efficiency (b) Effectiveness  
(c) Cooperation (d) Coordination
54. Highlight the feature of management depicted by the image given here.

T- Together

E-Everyone

A-Achieves

M-More



- (a) Goal-oriented (b) Pervasive  
(c) Group activity (d) Dynamic
55. Match the objective of management in Column I with their respective definition in Column II:

(a) Organisational Objectives	(i) Survival, profit and growth
(b) Social objectives	(ii) Providing basic amenities like schools and healthcare, etc.
(c) Personnel objectives	(iii) Satisfying diverse needs of employees, e.g. financial needs such as competitive salaries and perks, social needs such as peer recognition and higher level needs such as personal growth and development.

- (a) (a) - (i), (b) - (ii), (c) - (iii)  
(b) (a) - (ii), (b) - (i), (c) - (iii)  
(c) (a) - (iii), (b) - (ii), (c) - (i)  
(d) (a) - (i), (b) - (iii), (c) - (ii)

56. Match the functions of management in Column I with their explanation in Column II:

(a) Planning	(i) Setting goals in advance and developing a way of achieving them effectively and effectively.
(b) Organising	(ii) Establishing an atmosphere that encourages employees to do their best.
(c) Directing	(iii) Determining what activities and resources are required.
(d) Controlling	(iv) Determining what activities and outputs are critical to success.

- (a) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)  
 (b) (a) - (iii), (b) - (ii), (c) - (i), (d) - (iv)  
 (c) (a) - (i), (b) - (ii), (c) - (iii), (d) - (iv)  
 (d) (a) - (ii), (b) - (i), (c) - (iii), (d) - (iv)

57. Providing basic amenities like schools and creches to employees is an example of \_\_\_\_\_ objectives of management.

- (a) Social (b) Personal  
 (c) Growth (d) Organisational

58. Management is concerned with the efficient use of resources because \_\_\_\_\_.

- (a) they lead to higher profits.  
 (b) Both they reduce cost and they lead to higher profits.  
 (c) they help in finishing the given task on time.  
 (d) they reduce costs.

59. \_\_\_\_\_ comes under the top management.

- (a) Foremen  
 (b) Operations Manager  
 (c) Supervisors  
 (d) Chief Executive Officer

60. **Statement I:** A manager applies these scientific methods and body of knowledge to a given situation, an issue or a problem, in his own unique manner.

**Statement II:** A manager applies this acquired knowledge in a personalised and skillful manner in the light of the realities of a given situation.

- (a) Statement II is correct and Statement I is not correct.  
 (b) Both the Statements I and II are correct.  
 (c) Both the Statements I and II are not correct.  
 (d) Statement I is correct and Statement II is not correct.

61. **Statement I:** Management is concerned with the efficient use of these resources, because they reduce costs and ultimately lead to higher profits.

**Statement II:** Usually high efficiency is associated with high effectiveness which is the aim of all managers. But undue emphasis on high efficiency without being effective is also not desirable.

- (a) Statement II is correct and Statement I is not correct.  
 (b) Both the Statements I and II are not correct.  
 (c) Both the Statements I and II are correct.  
 (d) Statement I is correct and Statement II is not correct

62. Which of the following statement is false?

- a. Planning is the function of determining in advance what is to be done and who is to do it.  
 b. Planning cannot prevent problems.  
 c. Efficiency means doing the task correctly and with minimum cost.  
 d. Coordination is the function of the top management.

- (a) Option (c) (b) Option (a)  
 (c) Option (b) (d) Option (d)

63. Which of the following is true?

- A. Coordination is equally important at all levels of management.  
 B. Coordination is not equally important at all levels of management.  
 C. Coordination has no importance.  
 D. None of these

- (a) Only C (b) Both B and C  
 (c) Only B (d) Only A

64. In today's scenario, organisations look for individuals with specific qualifications and experience to manage them. It has also been observed that there has been an increase in the corporate form of business and increasing emphasis on managed business concerns. What does the above statement imply?
- (a) Management as an art  
(b) Management as a profession  
(c) Management as a science  
(d) Management is both art and science
65. Management has to achieve a variety of objectives in all areas considering the interest of all stakeholders including, shareholders, employees, customers and the government. The main objective of any organisation should be to utilise human and material resources to the maximum possible advantage. Identify the objectives of management highlighted above.
- (a) Governmental objective  
(b) Organisational Objectives  
(c) Personnel Objectives  
(d) Social Objectives
66. Profit maximisation as the objective of management does not hold true and is fast changing. Therefore, if an organisation has a good management team that is efficient and effective it automatically serves society by providing good quality products at reasonable prices. Identify the characteristic of the profession that is not fully present in management.
- (a) Restricted entry  
(b) Service motive  
(c) Professional association  
(d) Ethical code of conduct

**Question No. 67 to 71 are based on the given text. Read the text carefully and answer the questions:**

Best Textiles Ltd. is a big company. Managing many employees at the same moment is a challenge which this company always faces. Since the company has many departments it is necessary for the company to ensure unity of action among various departments. The various departments are human resources, marketing, finance, operations and sales. The top-level

managers coordinate with all middle-level managers. The middle-level managers coordinate simultaneously with top as well as lower-level managers. The lower-level managers coordinate with middle-level managers and the workers. The employees are always concerned about the company and are a useful resource to their organisation. Though they have diverse interests and have to perform different activities, the management ensures that the efforts of the employees should be given a focus so as to achieve the organisational goals.

The different departments have their own interests but due to proper coordination, conflict of interest between departments is minimized to zero. When it comes to the employees, the organisation shows its concern. The career of employees is shown a developmental path through proper training modules and job enrichment. Sanjeev is a manager who takes care of all the duties and responsibilities to be assigned to his employees in the department. He uses all sources to develop a proper communication with them and leaves no attempt to motivate them. Recently, he very patiently listened and resolved the grievances of the workers brought to him by Bhakti who is working in direct contact with workers at the shop floor. This year the company has decided to give the best manager award to Sanjeev for his contribution to the organisation.

67. Which characteristic of coordination has been highlighted in the above case?
- (a) Unity of action  
(b) All of these  
(c) Responsibility of all managers  
(d) Integration of group efforts
68. Which importance of management has been highlighted above?
- (a) Growth in size  
(b) Functional differentiation  
(c) Specialisation  
(d) All of these
69. Which type of objective is fulfilled here?
- (a) Personal                      (b) Social  
(c) Organisational              (d) Governmental
70. At which level of management does Sanjeev work?
- (a) Middle                      (b) Top  
(c) Floor level                  (d) Lower

71. At which level of management Bhakti is working?
- (a) Top-Level Management
  - (b) Managerial level
  - (c) Middle Level Management
  - (d) Lower Level Management

**Question No. 72 to 75 are based on the given text. Read the text carefully and answer the questions:**

Fashion India Limited is a chain of ladies garments boutiques where most of the work is done manually. Mr. Govind is responsible for the welfare and survival of the organisation.

He formulates overall organisational goals and strategies for their achievement.

Due to coming of international brands in India, the company is finding it difficult to compete on two fronts-finishing and embroidery work. Mr. Sharma, the production manager of the company, realised that without modern machines it would not be possible for them to survive for long. The company purchased new hi-tech modern machines from Germany. During the production process, the manager observed that the quality of production is not as per standard and very often production is disrupted due to break-down of machinery. The workers get frustrated by continuous rejection of output and started showing resistance towards new technology. To increase the efficiency of the workers, the company decided to train their workers on-the-job under the able guidance of specialists. The workers who are able to pick the skills are promoted and made in charge of the not so trained groups. This created positive impact and everybody became keen to learn. Suggestions from the workers are valued and workers are encouraged to communicate freely.

72. At which level of management is Mr. Govind working in Fashion India Limited?
- (a) Middle Management
  - (b) Operational Management
  - (c) Ground level
  - (d) Top Management
73. At which level of management is Mr. Sharma working in Fashion India Limited?
- (a) Operational Management
  - (b) Top Management
  - (c) Middle Management
  - (d) Floor level

74. The workers who are able to pick the skills are promoted and made in charge of the not so trained groups. This created positive impact and everybody became keen to learn. Identify the importance of management highlighted here.
- (a) Management helps in achieving personal objectives.
  - (b) Management increases efficiency.
  - (c) Management helps in achieving group goals.
  - (d) Management creates a dynamic organisation.
75. Which of the following point of importance is not discussed in the above case?
- (a) Management increases efficiency
  - (b) Management creates a dynamic organisation
  - (c) Management helps in the development of society
  - (d) Management helps in achieving personal objectives

# CUET-UG

COMMON UNIVERSITY ENTRANCE TEST-UG

SAMPLE

# HISTORY



## CONTENT

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# 1.

## Bricks, Beads and Bones The Harappan Civilization

The chapter deals with the beginning of the Harappan culture, subsistence strategies, agricultural strategies and technologies, their town planning, drainage system, burial system, art and craft, trade and commerce, governance, discovering the Harappan culture by ASI (Archaeological Survey of India), problems of piecing together the past and the various factors led to the end of the Civilization.

### KEY WORDS

**Artefacts:** The objects in terms of utensils weaponries, clothing materials, jewelries, grains etc. used by the ancestors (Historical & Cultural)

**Linga:** A polished stone worshiped as symbol of Shiva

**Citadel:** A raised land scape

**Low Town:** Several buildings built on platforms

**Hoard:** Objects kept carefully by people, often inside containers such as pots

**Mohenjo-Daro:** A mound of dead bodies

**Stratigraphy:** Layers arranged highly stratified i.e., layers are not exactly horizontal

### 1. CIVILIZATIONS

A **civilization** is a group of people who share common ways of life, beliefs, and ideologies. They often have specific cultural, social, and economic characteristics that distinguish them from another group.

Major civilizations throughout history have contributed to human progress and shaped the world in various ways. Before 1920, it was widely believed that **Egyptian civilization**, **Mesopotamian civilization**, and **Chinese civilization** were among the oldest in the world. However, the discovery of the **Harappan civilization** changed this view.

It is named as Harappan Civilization due to the initial discovery at Harappa. It is also known as **Indus Valley Civilization** because it was situated along the banks of the Indus River.

The Harappan or Indus Valley Civilization is a **Bronze Age civilization** existed from approximately **2600 BCE to 1900 BCE** and was contemporaneous with Mesopotamia and Egyptian civilizations. This civilization is called Bronze Age civilization because of discovery of bronze (tin & copper alloy) at sites.

#### Period of Harappan Civilization :

Early Harappa culture	-	3300 BCE to 2600 BCE
Mature Harappa culture	-	2600 BCE to 1900 BCE
Late Harappa culture	-	1900 BCE to 1500 BCE

### 2. FEATURES OF HARAPPAN CIVILIZATION

**1. Geographical Extent :** The civilization covered a vast area of approximately 13 lac square kilometers.

Northern boundary - Manda                      Southern Boundary - Daimabad  
Eastern boundary - Alamgirpur              Western boundary - Sutkagendor

- In present context, this civilization was spread from Jammu and Kashmir to Gujarat and Madhya Pradesh and extents to Afghanistan and Pakistan.

- Major excavation sites of the Harappan civilization includes Lothal (Gujarat), Kalibanga (Rajasthan), Nageshwar (Gujarat), and Dholavira (Gujarat).

## 2. Subsistence in Harappan civilization :

**Agriculture** : The people of the Harappan civilization cultivated crops like wheat, barley, pulses, millet, and white gram. Canals and wells were used for irrigation. Ploughs were used in the fields for cultivation. They appear to have grown two different crops simultaneously. For harvesting crops Harappan people use wood and stone.

**Animal Husbandry** : They raised cattle, sheep, goats, buffalo, and pigs for personal use.

**Hunting and Fishing** : The remains of fish, birds, and wild animals indicate that hunting and fishing were also part of their subsistence strategies.

## 3. Urban Planning: Cities like Mohenjo-Daro were meticulously planned with well-designed drainage system, streets, and houses.

**Mohenjo-Daro** was one of the two main cities of the Harappan civilization, the other of which was Harappa. It was in Larkana district of modern-day Pakistan. Its area was about 125 hectares.

The city in Mohenjo-Daro was mainly divided into two parts – Citadel and Lower Town.

**Citadel** was small in area. It was built at a height and surrounded by a wall. This wall separates lower town from citadel.

**Lower town** was larger than citadel in size. It was for the common people.

### Key features of Urban Planning :

- Well-structured roads intersecting at right angles.
  - Efficient drainage systems with covered drains.
  - Courtyard-based houses with wells and bathing areas, often two-storied.
  - Large Warehouse for grain storage.
  - Public facilities like inns and cooking areas outside the city to maintain cleanliness.
  - Garbage was disposed of in pits outside the cities.
  - **Large baths** with corridors and wells for water supply, possibly used for religious or bathing rituals.
- ## 4. Social Diversity: Luxury items, such as gold jewelry, differentiated social classes. Burial practices varied, with different types of tombs and the inclusion of earthen vessels and jewelry.
- ## 5. Religion: The people of the Harappan civilization are believed to have worshipped nature. Ritual scenes, tree plants, and a statue of a woman called "Devi" were discovered. Some symbols suggest a connection to Hindu deities.
- ## 6. Governance: The nature of governance in the Harappan civilization remains a subject of debate. Some suggest there were multiple rulers, while others believe it was a state due to the presence of commonalities across various regions.
- ## 7. Harappan Script: The script used in the Harappan civilization remains undeciphered. It is a pictorial script with around 375 to 400 signs, written from right to left.
- ## 8. Craftsmanship: The civilization had a thriving craftsmanship industry, producing jewelry, sculptures, tools, and beads.
- Raw materials were locally sourced or imported from other regions.
  - A variety of materials were used to make **beads** such as stones like carnelian jasper, crystal, quartz and steatite; metals like copper, bronze and gold and shell, faience and terracotta or burnt clay.
  - Techniques for making beads differed according to the material.
  - **Nageshwar** and **Balakot** were specialized centres for making shell objects.

- 9. Seals:** Mohr and Mundra Kan are used to protect the consignments. At the same time, they also revealed the identity of the sender.
- 10. Weights:** Exchanges were regulated by a precise system of weights, usually made of a stone called **chert** and generally cubical with no markings.
- The lower denominations of weights were binary (1, 2, 4, 8, 16, 32, etc. up to 12,800), while the higher denominations followed the decimal system.
  - The smaller weights were probably used for weighing jewelry and beads.
  - Metal scale-pans have also been found.

### 3. DECLINE OF HARAPPAN CIVILIZATION

The civilization's decline is attributed to various factors, including natural disasters like earthquakes, changes in the Indus River's course, climate change, deforestation, and possible Aryan invasions.

### 4. DISCOVERING THE HARAPPAN CIVILIZATION

Many archaeologists have discovered several aspects of the Harappan civilization:

- **Alexander Cunningham**, was the first **Director-General of the Archaeological Survey of India (ASI)**. He began archaeological excavations in the mid-19th century. He published report on Harappan seal in 1875.
- He made several mistakes in understanding the Harappan civilization. He underestimated its significance, misinterpreted Harappan seals, and wrongly associated the Harappan relics with the Vedic period. His reliance on limited written evidence contributed to these errors.
- **1921** M.S. Vats begins excavations at Harappa
- **1924** **John Marshall**, Director-General of the ASI, announced the discovery of a new civilization to the world in the form of Indus Valley Civilization. He tended to excavate along regular horizontal units, measured uniformly throughout the mound, ignoring the stratigraphy of the site. Excavation was conducted under the supervision of archaeologists **Daya Ram Sahani**.
- **1925** Excavations begin at Mohenjo-Daro.
- **1946** R.E.M. Wheeler as Director-General of the ASI, emphasised the need to follow the stratigraphy of mound rather than to dig mechanically along uniform horizontal line. He rectified the previous problems faced by the archaeologists. He excavates at Harappa.
- **1955** S.R. Rao begins excavations at Lothal.
- **1960** B.B. Lal and B.K. Thapar begin excavations at Kalibangan.

In the 1960s, the evidence of **massacre in Mohenjo-Daro and theory of Aryan invasion** was questioned by an archaeologist **George Dales**. He demonstrated that the skeletons found at the site did not belong to the same period. There is no destruction level covering the latest period of the city, no sign of extensive burning, no bodies of warriors clad in armour and surrounded by the weapons of war. The citadel, the only fortified part of the city, yielded no evidence of a final defence.

- **1974** M.R. Mughal begins explorations in Bahawalpur.
- **1980** A team of German and Italian archaeologists excavates.
- **1986** American team begins excavations at Harappa.
- **1990** R.S. Bisht begins excavations at Dholavira.

**PRACITCE EXERCISE**

- Which of these sites of Harappan Civilisation belong to Haryana?  
(a) Lothal (b) Shortugai  
(c) Kalibangan (d) Banawali
- Paleolithic age means:  
(a) Copper age (b) Old stone age  
(c) Iron age (d) New stone age
- Those who cultivated rice were, the  
(a) People of the whole Harappan region  
(b) People of Lothal and Rangpur  
(c) People of Mohenjo-Daro  
(d) People of Harappa
- Which of these was the cause of the decline of Harappan civilisation?  
(a) All of these (b) Deforestation  
(c) Floods (d) Climatic Change
- The one animal that was not represented in the terracottas of the Harappans was \_\_\_\_\_.  
(a) Deer (b) Buffalo  
(c) Cow (d) Goat
- Assertion (A)** : The archaeological records provide no immediate answer to the Harappa's central authority.  
**Reason (R)** : At Mohenjodaro, a large building was found which was labelled as a palace, but there was no such specific evidence was associated with it.  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
- The earliest representation of an ascetic practice comes from the  
(a) Pashupati seal of the Harappan culture  
(b) Aranyakas  
(c) Upanishads  
(d) Buddhist period
- With which animal were the Harappans not very familiar?  
(a) Pig (b) Sheep  
(c) Cattle (d) Horse
- Which of these was the source of copper for Harappans?  
(a) Karnataka (b) Rajasthan  
(c) Andhra Pradesh (d) Gujarat

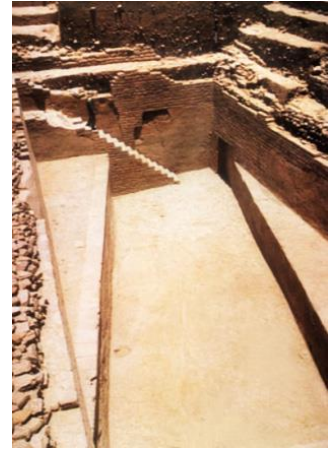
10. Match the following:

LIST I	LIST II
(a) Lower Town	(i) Rectangular structure
(b) Citadel	(ii) Residential buildings
(c) Roads and streets	(iii) Smaller but higher settlement
(d) Great Bath	(iv) Grid pattern

- (a) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (ii)  
(b) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)  
(c) (a) - (iv), (b) - (i), (c) - (ii), (d) - (iii)  
(d) (a) - (i), (b) - (iv), (c) - (iii), (d) - (ii)
- The earliest examples of sculpture in India go back to  
(a) Pre-historic times  
(b) Mauryan times  
(c) Gupta times  
(d) Proto-historic times
  - A highly advanced water management system of Harappan times has been unearthed at  
(a) Kalibangam (b) Alamgirpur  
(c) Dholavira (d) Lothal
  - Which of the following is **not** one of the features of Harappan writing?  
(a) It has been deciphered by James Prinsep.  
(b) The Harappan script was pictographic and not alphabetical.  
(c) It had too many signs, somewhere between 375 and 400.  
(d) The script was written from right to left.
  - Identify the structure in the Citadel with the help of the following information:
    - It was a large rectangular tank in a courtyard surrounded by a corridor on all four sides.
    - There were two flights of steps on the north and south leading into the tank, which was made watertight by setting bricks on edge and using a mortar of gypsum.
 (a) Great Bath  
(b) Dockyard  
(c) Gopuram  
(d) Granary

15. Which of these is the other name of Harappan Civilisation?  
 (a) Vedic Civilisation  
 (b) Aryan Civilisation  
 (c) Indus Valley Civilisation  
 (d) All of these
16. The Social System of the Harappans was?  
 (a) Colour-based  
 (b) Fairly-egalitarian based  
 (c) Slave-labour based  
 (d) Caste-based
17. Consider the following statements regarding the fact that Indus valley civilization was an urban civilization.
- Specimens of pottery have been discovered there.
  - Ruins of well-planned cities with wide roads discovered there.
  - Seals decorated with beautiful images discovered there
  - Magnificent drainage system has been discovered there.
- (a) ii and iii                      (b) i and iii  
 (c) ii and iv                        (d) i and iv
18. Which of the following things were found at craft production centres in Harappan civilisation?  
 i. Carnelian                      ii. Jasper  
 iii. Crystal                        iv. Quartz  
 (a) ii, iv                              (b) i, ii and iii  
 (c) iii, iv                             (d) ii, iii, iv
19. Which town in Indus Valley Civilisation had no Citadel?  
 (a) Chanhudaro                  (b) Mohenjodaro  
 (c) Harappa                        (d) Lothal
20. Harappa is located on the banks of \_\_\_\_\_.  
 (a) Chenab                         (b) Ravi  
 (c) Indus                            (d) Jhelum
21. Man first used metals for  
 (a) Constructing houses  
 (b) Clearing jungles and harvesting  
 (c) Making wheels  
 (d) Making pots
22. What was the main feature of the Harappa Civilisation?  
 (a) Art and architecture  
 (b) Town planning  
 (c) Administration  
 (d) Agriculture

23. Identify the given image from the following options:  
 (a) Reservoir at Dholavira  
 (b) Dockyard in Lothal  
 (c) Great Bath at Kalibangan  
 (d) Drain in Mohenjo-Daro



24. Identify the material with the help of following information:  
 - It is a material made of ground sand or silica mixed with colour and gum and then fired.  
 - The little pots of this material were probably considered precious because it was very difficult to make them.
- (a) Faience  
 (b) Lapis lazuli  
 (c) Carnelian  
 (d) Terracotta
25. Match the following:

LIST I	LIST II
(a) Shortughai	(i) Copper
(b) Khetri	(ii) Carnelian
(c) Nageshwar	(iii) Lapis Lazuli
(d) Lothal	(iv) Shell

- (a) (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)  
 (b) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)  
 (c) (a) - (ii), (b) - (i), (c) - (iv), (d) - (iii)  
 (d) (a) - (iii), (b) - (i), (c) - (iv), (d) - (ii)
26. Mohenjo-Daro means the mound of the dead. Which other word has the same meaning?  
 (a) Chanhudaro                  (b) Surkotada  
 (c) Kalibangan                  (d) Lothal
27. Lothal lies in a level plain between  
 (a) The Ganges and The Jamuna  
 (b) Sabarmati and Narmada  
 (c) The Sutlej and The Ravi  
 (d) The Bhogava and The Sabarmati Rivers
28. At burials in Harappan sites the dead were generally laid in \_\_\_\_\_.  
 (a) pits                                (b) caves  
 (c) boxes                              (d) wholes

29. **Assertion (A)** : The Harappan script remains undeciphered today.  
**Reason (R)** : It was written from left to right and it is clear from the fact that it had a wider spacing on the left and cramping on the right.
- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
30. The remains of Indus valley Civilization were first discovered in
- (a) 1941 (b) 1911  
(c) 1921 (d) 1931
31. Which of the following is true with respect to Harappan seals?
- (a) Contained name and title of the owner  
(b) All of these  
(c) Conveyed meaning  
(d) Had motifs
32. From where did Harappans get gold?
- (a) Chotta Nagpur region  
(b) Central India  
(c) South India  
(d) Himalayan Region
33. Harappan civilisation can into existence in \_\_\_\_\_.
- (a) 3600 BCE (b) 1000 BCE  
(c) 2600 BCE (d) 1600 BCE
34. Which of the following items has not been found in the Harappan graves?
- (a) Jewellery  
(b) Iron hand axe  
(c) Copper mirrors  
(d) Pottery and ornaments
35. Match the following:

LIST I	LIST II
(a) S.N. Roy	(i) First professional archaeologist to work in India
(b) John Marshall	(ii) Used the accounts left by Chinese pilgrims
(c) Cunningham	(iii) Author of "The Story of Indian Archaeology"
(d) G.F. Dales	(iv) Author of "The Mythical Massacre at Mohenjodaro"

- (a) (a) - (iii), (b) - (i), (c) - (ii), (d) - (iv)  
(b) (a) - (i), (b) - (iii), (c) - (iv), (d) - (ii)  
(c) (a) - (iv), (b) - (ii), (c) - (iii), (d) - (i)  
(d) (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii)
36. Indus areas were fertile because of the
- (a) Rotation of crops  
(b) Annual inundation in the Indus river  
(c) Use of green manure  
(d) Use of fertilizers
37. Which of these was not worshipped by the Harappan?
- (a) Goddess (b) Indra  
(c) Nature (d) Pashupatinath
38. Which statement on the origin of the Harappan Civilization is probably the most correct?
- (a) It was of Sumerian origin  
(b) It developed all of a sudden  
(c) It was of Aryan origin  
(d) It evolved from the local pre- Harappan and early Harappan cultures
39. **Assertion (A)** : Careful re-examination of the data can sometimes lead to a reversal of earlier interpretations.  
**Reason (R)** : Fresh evidence that comes to light does not support earlier interpretations.
- (a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.
40. "Swastika" symbol is of
- (a) Tamilian origin  
(b) Sangam origin  
(c) Indus Valley origin  
(d) Hindu origin
41. In which age were the copper and stone implements used?
- (a) Mesolithic (b) Microlithic  
(c) Chalcolithic (d) Neolithic
42. How many Indus Valley seals have been found so far?
- (a) More than 200 (b) More than 400  
(c) More than 1000 (d) More than 2000
43. Which of these is the feature of Harappan Civilisation?
- (a) Drainage system  
(b) Citadel and Lower town  
(c) Urban planning  
(d) All of these

44. \_\_\_\_\_ of bullock carts suggest that this was one important means of transporting goods and people across land routes.  
(a) Wooden models  
(b) Iron models  
(c) Terracotta toy models  
(d) Earthen models
45. Consider the following statements regarding Lothal.  
i. Discovery of the dockyard.  
ii. Rectangular and circular fire altars for animal sacrifices found in Lothal.  
iii. Seals were discovered with Bullock carts.  
iv. Evidence of ploughing discovered from lothal.  
(a) i and iv (b) i and iii  
(c) ii and iv (d) i and ii
46. The worship of Mother Goddess was  
(a) Known to the Indus Valley and Zhob people  
(b) Practised by almost all ancient civilizations  
(c) Peculiar only to the Indus valley people  
(d) Known to the Indus Valley, Zhob and Kulli people
47. The local name of Mohenjo-Daro is  
(a) Mound of the great  
(b) Mound of bones  
(c) Mound of the dead  
(d) Mound of the living
48. The **Great Bath** was found in which town of the Indus Valley Civilisation?  
(a) Mohenjodaro (b) Harappa  
(c) Rangpur (d) Lothal
49. Where were large granaries found?  
(a) Banawali  
(b) Harappa and Mohenjodaro  
(c) Lothal and Dholavira  
(d) Kalibangan
50. The word Kalibangan means  
(a) Black seals  
(b) Black bangles  
(c) Black mound  
(d) Black pottery
51. Barrack-like groups of single-roomed tenements have been discovered at  
(a) Harappa and Mohenjo-daro  
(b) Kalibangan and Harappa  
(c) Only Mohenjo-daro  
(d) only Harappa

52. **Assertion (A)** : Archaeologists argue that there was a single state and single ruler.  
**Reason (R)** : There was similarity in artifacts, the evidence for planned settlements, and the standardized ratio of brick size.  
(a) Both A and R are true and R is the correct explanation of A.  
(b) Both A and R are true but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) A is false but R is true.

53. Which among the following is correctly matched?

LIST I Regions	LIST II Material
A. Nageshwar	Carnelian
B. Bharuch	Steatite
C. Shortughai	Lapis lazuli
D. Balakot	Copper

- (a) B. Bharuch - Steatite  
(b) A. Nageshwar - Carnelian  
(c) D. Balakot - Copper  
(d) C. Shortughai - Lapis lazuli
54. Consider which of the following statement distinguishes the Harappan civilisation from other contemporary civilisations of the world.  
i. Religious beliefs and social life.  
ii. Uniform weights and measures.  
iii. The magnificent drainage system and sanitation.  
iv. Method of town planning followed by Harappan.  
Which of the above are correct about Harappan civilization which distinguished this civilisation from its contemporary civilisations?  
(a) i and iii (b) ii and iii  
(c) ii and iv (d) iii and iv

**Question No. 55 to 60 are based on the given text. Read the text carefully and answer the questions:**

Processing of food required grinding equipment as well as vessels for mixing, blending and cooking. These were made of stone, metal and terracotta. Saddle querns ... are found in considerable numbers ... and they seem to have been the only means in use for grinding cereals. As a rule, they were roughly made of hard, gritty, igneous rock or sandstone and mostly show signs of hard usage. As their bases are usually

convex, they must have been set in the earth or in mud to prevent their rocking. Two main types have been found: those on which another smaller stone was pushed or rolled to and fro, and others with which a second stone was used as a pounder, eventually making a large cavity in the nether stone. Querns of the former type were probably used solely for grain; the second type possibly only for pounding herbs and spices for making curries. In fact, stones of this latter type are dubbed "curry stones" by our workmen and our cook asked for the loan of one from the museum for use in the kitchen.

55. Which of the following is not correct with respect to saddle querns?
- Produced by rocking or rolling the hand stone using parallel motions.
  - Stone tools are used for grinding varieties of material with one's hand.
  - Roughly made of hard, gritty, metamorphic rock.
- (a) ii and iii                      (b) i and ii  
(c) All of these                    (d) only iii
56. Find the relation between A and B in each group and fill in the blank accordingly.
- A. The first type of stone: Used solely for grain.  
B. The second type of stone: (?)
- Used for making dough
  - Both used as a pounder and for making curies
  - Used as a pounder
  - Used for making curies
57. The second type of querns is described as \_\_\_\_\_.
- curry stones                      (b) hard rock stones
  - grinding stones                (d) igneous stones
58. Saddle querns are found in which site?
- Mohenjodaro
  - Dholaveera
  - Both Mohenjodaro and Dholaveera
  - Lothal
59. Which of the following were the only means in use for grinding cereals?
- Curry Stones                    (b) Saddle Querns
  - Metamorphic Rock            (d) Limestone
60. Which of the following ideas does the extract give?
- How artefacts are identified
  - Different types of artefacts
  - How artefacts were made
  - Stones used for the artefacts

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	Mental Ability	1
8th	Physics / Chemistry / Biology / Mathematics	5
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	History / Geography / Civics	3
	Mental Ability	1
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	Mental Ability	1

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