Ultimate Guide to

SSC

MULTI TASKING STAFF

(Non-Technical) Exam
with **Previous Year Questions &**

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CHAPTER

1

Analogy

The meaning of analogy is 'similar properties' or similarity. If an object or word or digit or activity shows any similarity with another object or word or digit or activity in terms of properties, type, shape, size, trait etc., then the particular similarity will be called analogy. For example, cricket : ground and chess: table are the analogous pairs (why?). In fact, both pairs of words have similar relationship in terms of place of playing as cricket is played in the ground and similarly chess is played on the table. In this chapter we will discuss different types of analogy because problems based on analogy are an important category of questions to be asked in almost all examinations of competitive level.

TYPES OF ANALOGY

1. **Tool & object based analogy:** This establishes a relationship between a tool and the object in which it works. Similar relations has to be discovered from answer choices.

   Examples:

Pencil	:	Paper
Pen	:	Paper

2. **Synonym based analogy :** In such type of analogy two words have similar meaning.

   Examples:

Big	:	Large
Huge	:	Gigantic

3. **Worker & tool based analogy:** This establishes a relationship between a particular tool and the person of that particular profession who uses that tool.

   Examples:

Writer	:	Pen
Painter	:	Brush

4. **Worker & product based analogy:** This type of analogy gives a relationship between a person of particular profession and his/her creations.

   Examples:

Batsman	:	Run
Writer	:	Book

5. **Causes & effect based analogy:** In such type of analogy 1st word acts and the 2nd word is the effect of that action.

   Examples:

Work	:	Tiredness
Bath	:	Freshness

6. **Opposite relationship (Antonym) based analogy :** In such type of analogy the two words of the question pair are opposite in meaning. Similar relations has to be discovered from the answer choice word pairs.

   Examples:

Poor	:	Rich
Fat	:	Slim

7. **Gender based analogy:** In such type of analogy, one word is masculine and another word is feminine of it. In fact, it is a 'male and female' or 'gender' relationship.

   Examples:

Man	:	Woman
Boy	:	Girl

8. **Classification based analogy:** This type of analogy is based on biological, physical, chemical or any other classification. In such problems the 1st word may be classified by the 2nd word and vice-versa.

   Examples:

Cow	:	Animal
Girl	:	Human

9. **Function based analogy :** In such type of analogy, 2nd word describes the function of the 1st word.

   Examples:

Singer	:	Sings
General	:	Commands

10. **Quantity and unit based analogy:** In such type of analogy 2nd word is the unit of the first word and vice-versa.

    Examples:

Distance	:	Mile
Mass	:	Kilogram

11. **Finished product & raw material based analogy :** In such type of analogy the 1st word is the raw material and 2nd word is the end product of that raw material and vice-versa.

    Examples:

Yarn	:	Fabric
Milk	:	Curd

12. **Utility based analogy :** In such type of analogy the 2nd word shows the purpose of the 1st word or vice-versa.

    Examples:

Pen	:	Writing
Food	:	Eating

13. **Symbolic relationship based analogy:** In such type of analogy, the 1st word is the symbol of the 2nd word and vice-versa.

    Examples:

    | White | : | Peace |
    | Red | : | Danger |

14. **Adult & young one based analogy :** In such type of analogy, the 1st word is the adult one and 2nd word is the young one of the 1st word or vice-versa.

    Examples:

    | Cow | : | Calf |
    | Human | : | Child |

15. **Subject & specialist based analogy:** In such type of analogy the 2nd word is the specialist of 1st word (subject) or vice-versa.

    Examples:

    | Heart | : | Cardiologist |
    | Skin | : | Dermatologist |

16. **Habit based analogy:** In this type of analogy 2nd word is the habit of 1st and vice-versa.

    Examples:

    | Cat | : | Omnivorous |
    | Tiger | : | Carnivorous |

17. **Instrument and measurement based analogy:** We see in this type of analogy, the 1st word is the instrument to measure the 2nd word and vice-versa:

    Examples:

    | Hygrometer : | Humidity |
    | Barometer | : | Pressure |

18. **Individual & group based analogy :** Second word is the group of 1st word (or vice-versa) in such type of analogy.

    Examples:

    | Cow | : | Herd |
    | Sheep | : | Flack |

19. **State & capital based analogy:** 1st word is the state and 2nd word is the capital of that state (1st word) (or vice-versa) in the analogy like this.

    Examples:

    | Bihar | : | Patna |
    | West Bengal | : | Kolkata |

    Note: Analogy based on country and capital is very similar to this type of analogy in which we put name of the country in place of the name of state and country capital in place of state capital. For example India: New Delhi and Nepal : Kathmandu.

20. **Analogy based on individual & dwelling place :** In such type of analogy 1st word is the individual & 2nd word is the dwelling place of that individual (1st word) and vice-versa.

    Examples:

    | Horse | : | Stable |
    | Bee | : | Apiary |

21. **Analogy based on worker and working place:** In this type of analogy the 1st word represents a person of particular profession and 2nd word represents the working place of that person (1st word) and vice-versa.

    Examples :

    | Doctor | : | Hospital |
    | Clerk | : | Office |

22. **Analogy based on topic study:** 1st word is the study of the 2nd word (or vice-versa) in the analogy like this.

    Examples:

    | Birds | : | Ornithology |
    | Earth quakes | : | Seismology |

23. **Analogy based on letters (or meaningless words)**

    Case I : (Forward alphabetical sequence)

    Examples:

    CD : FG : : PQ : UV

    Here CD and FG are in the natural alphabetical sequence. Similarly, PQ & UV are in the natural alphabetical sequence.

    Case II: (Backward or opposite alphabetical sequence)

    Example:

    DC : GF : : QP : VU

    In fact this case is opposite of case I

    Case III: (Vowel – consonant relation)

    Example

    ATL : EVX : : IPR : ORS

    Here, the 1st two words start with the 1st two vowels A & E and the next two words start with the next two vowels I & O. Last two letter of every word are consonants.

    Case IV: Example (Skip letter relation)

    ABC : FGH : : IJK : NOP

    Here between ABC & FGH two letters skip and they are D & E. Similarly, between IJK & NOP two letters skip and they are L & M.

    Case V: (Jumbled letters relation)

    Example:

    (i)   LAIN : NAIL : : EVOL : Love

    Here the 1st term gets reveresed to produce the 2nd term and similar relation is shown in between 3rd and 4th term.

    (ii)   ABCD : OPQR : : WXYZ : KLMN

    In (ii) each letter of the 1st group 'ABCD' is moved fourteen steps forward to obtain the corresponding letter of the 2nd group 'OPQR'. A similar relation is established between the third group 'WXYZ' and the fourth group 'KLMN.'

NOTE : *Every type of analogy discussed in (23) may have different variations of problems and you can get perfection on them by proper practice only.*

Format of the questions

EXAMPLE ▶ **1. Lion is to flesh as cow is to …….**

    (a) snake   (b) grass
    (c) worm   (d) animal

Sol.   Lion eats flesh, similarly, cow eats grass. Hence option (b) is the right answer.

EXAMPLE ➤ **2. Pen : Writer : : ……. : Batsman**

(a) Brush   (b) Fighter

(c) Stick   (d) Bat

Sol. Option (d) is the correct answer because a writer uses pen to write and similarly a batsman uses bat to play.

EXAMPLE ➤ **3.** NCDP : ODEQ : : ……… : MPRO

(a) LOQN   (b) NQOL

(c) OQNL   (d) QNOL

Sol. Option (a) is the correct answer as letters of 1st term go one step forward to be the 2nd term. Similarly, the letters of 3rd term will go one step forward to be the 4th term (Letters of step go one step backward to be the 3rd term).

EXAMPLE ➤ **4. Bulky : Fat : : Happiness : ?**

(a) Bad   (b) Ugly

(c) Joy   (d) Sorrow

Sol. (c) is the correct option because 'Bulky' is the synonym of 'Fat' and similarly 'Happiness' is the synonym of 'joy'. Now, we can say that we have discussed almost all type of analogy to be asked frequently in the examinations. But examinees must prepare for any surprise kind of problems while solving the problems under this segment. But by practicing more & more, you can be master in solving these problems. Only keep in mind the following:

(1) You must have strong word power.

(2) You must have good understanding & reasoning ability.

(3) You must have good general knowledge.

EXERCISE

1. Which of the following has the same relationship as that of Money : Wealth

    (a) Pity : Kindness   (b) Cruel : Anger

    (c) Wise : Education   (d) Pride : Humility

2. Which of the following is related to 'Melody' in the same way as 'Delicious' is related to 'Taste'?

    (a) Memory   (b) Highness

    (c) Voice   (d) Speak

3. In a certain way 'Diploma' is related to 'Education'. Which of the following is related to 'Trophy' in a similar way?

    (a) Sports   (b) Athlete

    (c) Winning   (d) Prize

4. 'Clock' is related to 'Time' in the same way as 'Vehicle' is related to which of the following?

    (a) Driver   (b) Road

    (c) Passenger   (d) Journey

5. "Illness" is related to "Cure" in the same way as "Grief" is related to

    (a) Happiness   (b) Ecstasy

    (c) Remedy   (d) Solicitude

6. 'Necklace' is related to 'Jewellery' in the same way as 'Shirt' is related to

    (a) Cloth   (b) Cotton

    (c) Apparel   (d) Thread

7. 'Bouquet' is related to 'Flowers' in the same way as 'sentence' is related to

    (a) Letters   (b) Paragraph

    (c) Content   (d) Words

8. Which pair of the letters in the word BEAUTIFUL has the same relationship between its letters with respect to their position in the English alphabet as the pair EA in that word has between its letters?

    (a) IB   (b) LF

    (c) IE   (d) FL

9. 'Income' is related to 'Profit' in the same way as 'Expenditure' is related to

    (a) Sale   (b) Receipts

    (c) Surplus   (d) Loss

10. 'Electricity' is related to 'Wire' in the same way as 'Water' is related to

    (a) Bottle   (b) Jug

    (c) River   (d) Pipe

11. 'Hospital' is related to 'Nurse' in the same way as 'Court' is related to

    (a) Justice   (b) Lawyer

    (c) Judgement   (d) Trial

12. By following certain logic 'THEIR' is written as 'TRIHE' and 'SOLDIER' is written 'SROLIED'. How is CUSTOM written in that logic?

    (a) UTSOMC   (b) CTSUOM

    (c) CUTSOM   (d) YUSOMC

DIRECTIONS (Qs. 13-38) : *In each of the following questions, there are two words / set of letters / numbers to the left of the sign :: which are connected in some way. The same relationship obtains between the third words / set of letters / numbers and one of the four alternatives under it. Find the correct alternative in each question.*

13. Flying : Bird :: Creeping : ?

    (a) Aeroplane   (b) Snail

    (c) Ground   (d) Flower

14. Clock : Time :: Thermometer : ?

    (a) Heat   (b) Radiation

    (c) Energy   (d) Temperature

15. Man : Walk :: Fish : ?

    (a) Swim   (b) Eat

    (c) Live   (d) Sleep

16. Import : Export :: Expenditure : ?
    (a) Deficit   (b) Income
    (c) Debt   (d) Tax

17. Ocean : Water :: Glacier : ?
    (a) Refrigerator   (b) Ice
    (c) Mountain   (d) Cave

18. 14 : 9 :: 26 : ?
    (a) 12   (b) 13
    (c) 15   (d) 31

19. ACFJ : OUZJ :: SUXB : ?
    (a) GNSA   (b) GLQZ
    (c) GKPY   (d) GMRB

20. 6 : 24 :: 5 : ?
    (a) 23   (b) 22
    (c) 26   (d) 20

21. Medicine : Sickness :: Book : ?
    (a) Ignorance   (b) Knowledge
    (c) Author   (d) Teacher

22. Bank : River :: Coast : ?
    (a) Flood   (b) Waves
    (c) Sea   (d) Beach

23. Supervisor : Worker ::
    (a) Junior : Senior   (b) Elder : Younger
    (c) Debtor : Creditor   (d) Officer : Clerk

24. Thunder : Rain :: Night : ...
    (a) Day   (b) Dusk
    (c) Darkness   (d) Evening

25. ACE : HIL :: MOQ : ?
    (a) XVT   (b) TVX
    (c) VTX   (d) TUX

26. NUMBER : UNBMER :: GHOST : ?
    (a) HOGST   (b) HOGTS
    (c) HGOST   (d) HGSOT

27. 11 : 17 :: 19 : ?
    (a) 29   (b) 27
    (c) 23   (d) 21

28. Court : Justice :: School : ?
    (a) Teacher   (b) Student
    (c) Ignorance   (d) Education

29. Breeze : Cyclone :: Drizzle : ?
    (a) Earthquake   (b) Storm
    (c) Flood   (d) Downpour

30. Oxygen : Burn :: Carbon dioxide : ?
    (a) Isolate   (b) Foam
    (c) Extinguish   (d) Explode

31. Teheran : Iran :: Beijing : ?
    (a) China   (b) Japan
    (c) Turkey   (d) Malaysia

32. 3 : 27 :: 4 : ?
    (a) 140   (b) 75
    (c) 100   (d) 64

33. Disease : Pathology :: Planet : ?
    (a) Astrology   (b) Geology
    (c) Astronomy   (d) Palaeontology

34. Foresight : Anticipation :: Insomnia : ?
    (a) Treatment   (b) Disease
    (c) Sleeplessness   (d) Unrest

35. CG : EI :: FJ : ....
    (a) LM   (b) IJ
    (c) GK   (d) HL

36. ACE : FGH :: LNP : ?
    (a) QRS   (b) PQR
    (c) QST   (d) MOQ

37. 211 : 333 :: 356 : ?
    (a) 358   (b) 359
    (c) 423   (d) 388

38. Wine : Grapes :: Vodka : ?
    (a) Apple   (b) Potatoes
    (c) Oranges   (d) Flour

DIRECTIONS (Qs. 39) : *In this question select/relate letter from the given figure*

39. *RIDE : LNBE :: HELP : ?*
    (a) NINP   (b) BAJP
    (c) JPCH   (d) BJJP

DIRECTIONS (Qs. 40-43) : *In questions no. 40 to 42, select the related word/letter/number from the given alternatives.*
[SSC Multitasking-2014]

40. 3 : 7 :: 15 : ?
    (a) 30   (b) 35
    (c) 45   (d) 49

41. Kalidas : Meghdoot :: Kautilya : ?
    (a) Ramayana   (b) Arthashastra
    (c) Kamayani   (d) Kadambari

42. Water : Ocean :: Sand : ?
    (a) Island   (b) Waves
    (c) River   (d) Desert

43. ABC : XYZ : ; CDE : ?
    (a) UVW   (b) WXY
    (c) AVW   (d) VWX

DIRECTIONS (Qs. 44 to 47): *Select the related word/letters/number from the given alternatives.* **[SSC Multitasking-2016]**

44. 8 : 512 :: 9 : ?
    (a) 728   (b) 729
    (c) 781   (d) 792

45. ADIP : DGLS :: BEJQ : ?
    (a) FINU   (b) EJQU
    (c) EHMT   (d) CGLS

46. AUTHOR : PEN :: DOCTOR : ?
    (a) HOSPITAL   (b) DISPENSARY
    (c) STETHOSCOPE   (d) WARD

47. POLITE : ETILOP
    (a) DRAOB : BROAD   (b) SINGLE : ELGNIS
    (c) CHART : TRACH   (d) WOMEN : WOMAN

48. In the following question, select the related word from the given alternatives. **[SSC Multitasking-2017]**
    Love : Hate : : Deep : ?
    (a) Long   (b) Bright
    (c) Shallow   (d) High

49. In the following question, select the related number from the given alternatives. **[SSC Multitasking-2017]**
    18636 : 3106 : : 2508 : ?
    (a) 418   (b) 406
    (c) 394   (d) 430

50. In the following question, select the related letters from the given alternatives. **[SSC Multitasking-2017]**
    LP : QU : : VX : ?
    (a) BD   (b) AD
    (c) ZB   (d) AC

51. Select the option that is related to the third term in the same way as the second term is related to the first term.
    Jute : Sack : Wood : ? **[SSC Multitasking-2018]**
    (a) Furniture   (b) Brown
    (c) Plastic   (d) Hard

52. Select the option that is related to the third Letter Cluster in the same way as the second Letter Cluster is related to the first Letter Cluster.
    ROAD : TREI :: MINT : ? **[SSC Multitasking-2018]**
    (a) OMRY   (b) PMSZ
    (c) PNSZ   (d) OLRY

53. Select the option that is related to the third term in the same way as the second term is related to the first term.
    Film : Producer : : Poem : ? **[SSC Multitasking-2018]**
    (a) Director   (b) Actor
    (c) Poet   (d) Cobbler

54. Select the option that is related to the third number in the same way as the second number is related to the first number. **[SSC Multitasking-2018]**
    596 : 965 : : 824 : ?
    (a) 248   (b) 408
    (c) 418   (d) 258

55. Select the option that is related to the third number in the same way as the second number related to the first number.
    35 : 66 : : 29 : ? **[SSC Multitasking-2019]**
    (a) 63   (b) 62
    (c) 60   (d) 57

56. Select the word pair in which the two words are related in the same way as the two words in the following word-pair?
    Five : Pentagon **[SSC Multitasking-2019]**
    (a) Four : Rectangle   (b) Triangle : Three
    (c) Square : Four   (d) Six : Septagon

57. Select the option that is related to the third term in the same way as the second term is related to the first term.
    Colour : Red : : Profession : ? **[SSC Multitasking-2019]**
    (a) Lawyer   (b) Court
    (c) School   (d) Black

58. Select the option in which the letters share the same relationship as that shared by the given pair of letters.
    JT : NX **[SSC Multitasking-2019]**
    (a) TP : XT   (b) RK : VG
    (c) GS : KU   (d) LD : PG

59. 'Tired' is related to 'Exhausted' in the same way as 'Sad' is related to '_____'. **[SSC Multitasking-2020]**
    (a) Depressed   (b) Happy
    (c) Mood   (d) Feeling

60. 'Density' is related to 'Hydrometer' in the same way as 'Mass' is related to '_____'. **[SSC Multitasking-2020]**
    (a) Heaviness   (b) Kilogram
    (c) Balance   (d) Volume

61. Select the number from the options that is similar to the numbers in the given set. **[SSC Multitasking-2020]**
    (425, 902, 713)
    (a) 555   (b) 624
    (c) 319   (d) 218

62. Select the number-pair in which the two numbers are related in the same way as the two numbers of the pair given below.
    20 : 68 **[SSC Multitasking-2020]**
    (a) 30 : 110   (b) 25 : 90
    (c) 12 : 30   (d) 5 : 18

63. Select the option that is related to the third letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster. **[SSC Multitasking-2020]**
    FHKO : UQNL : : MORV : ?
    (a) NLIE   (b) NIFD
    (c) PLIG   (d) NJGE

64. Select the option that is related to the sixth word in the same way as the first word is related to the second word and the third word is related to the fourth word.
    Speech : Dumb :: Sight : Blind :: ? : Deaf
    [SSC Multitasking-2021]
    (a) Sound   (b) Vibrations
    (c) Voice   (d) Language

65. Select the option in which the two numbers are related in the same way as are the numbers in the give number pair.
    [SSC Multitasking-2021]
    31 : 48
    (a) 29 : 44   (b) 43 : 62
    (c) 53 : 74   (d) 37 : 54

66. Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number. **[SSC Multitasking-2021]**
    16 : 38 :: 26 : 58 :: 37 : ?
    (a) 78   (b) 76
    (c) 74   (d) 80

67. Select the option that is related to the fifth letter-cluster in the same way as the second letter-cluster is related to the first letter-cluster and the fourth letter-cluster is related to the third letter-cluster.

[SSC Multitasking-2021]

GOOD : HSXT :: BEST : CIBJ :: COOL : ?
(a) DSSB   (b) DSXZ
(c) DSZB   (d) DSXB

68. Select the option in which the pair of letter-clusters share the same relationship as that shared by the given pair of letter-clusters.   **[SSC Multitasking-2021]**

MOB : KMZ :: ?
(a) AJK : YHN   (b) LOP : JMN
(c) BND : DLB   (d) STB : PRZ

69. Select the option that is related to the fifth number in the same way as the second number is related to the first number and the fourth number is related to the third number.   **[SSC Multitasking-2021]**

23 : 72 :: 38 : 117 :: 46 : ?
(a) 138   (b) 156
(c) 141   (d) 122

Hints & Explanations

1. (a) They are synonymous.

2. (c) 'Delicious' is the adjective used for 'Taste'. Similarly, 'Melodious' is the adjective used for 'Voice'.

3. (a) A successful finish of 'Education' equips one with 'Diploma'. Similary, a successful finish in 'Sports' equips one with 'Trophy'.

4. (d) The clock makes a journey of time.

5. (c) Cure ensures removal of illness in the same way as remedy insures removal of grief.

6. (c) Jewellery consists of Necklace ie 'Necklace' is a kind of 'Jewellery'. Similarly, 'Shirt' is a kind of 'Apparel'.

7. (d) **Bouquet** is a bunch of **flowers**. Similarly, **Sentence** is a set of **words** that is complete in itself.

8. (c) $\overset{-4}{B\underset{-4}{EAUTIFUL}}$

9. (d) When **Income** is more than expenditure, it bears **Profit.** But when **Expenditure** is more than income, then **loss** occurs.

10. (d) **Wire** is the medium to transmit **Electricity.** Similarly, **Pipe** is the medium to carry **Water**.

11. (b) Here, the first is the working place of the second.

12. (a) Words are arranged in alphabetical order but from right to left. If becomes UTSOMC.

13. (b) As 'Bird' flies, in the same way, 'snails' creeps.

14. (d) First is an instrument to measure the second.

15. (a) As a man covers some distance after walking, in the same way, a fish covers some distance after swimming. Hence the correct answer is (a).

16. (b) The words in each pair are antonyms.

17. (b) First consists of the second.

18. (c) The relationship is $(2x - 4) : x$.

19. (d) As,   Similarly,

$A \xrightarrow{+14} O$ $S \xrightarrow{+14} G$

$C \xrightarrow{+18} U$ $U \xrightarrow{+18} M$

$F \xrightarrow{+20} Z$ $X \xrightarrow{+20} R$

$J \xrightarrow{+0} J$ $B \xrightarrow{+0} B$

20. (d) Second term = 4 × First term
∴ Fourth term = 4 × Third term

21. (a) As medicine cures sickness, in the same way, books remove ignorance.

22. (c) Bank is the land beside a river.
Similarly, coast is the land beside a sea.

23. (d) As supervisor supervises the worker, in the same way, officer supervises the clerk.

24. (c) As 'Rain' is followed by 'Thunder', similarly 'Darkness' is followed by 'Night'.

25. (d) As,   Similarly,

$A \xrightarrow{+7} H$ $M \xrightarrow{+7} T$

$C \xrightarrow{+6} T$ $M \xrightarrow{+6} U$

$E \xrightarrow{+7} L$ $Q \xrightarrow{+7} X$

26. (d) First two letters of the first term are in reverse order in the second term and so are the next two letters.

27. (a) 11 : 17 alternate prime number (skipping 13) 19 : 29 alternate prime number (skipping 23)

28. (d) First is the place where the second is imparted.

29. (d) Second is more intense than the first.

30. (c) 'Oxygen' helps in burning while 'carbon dioxide' extinguishes fire.

31. (a) 'Teheran' is the capital of 'Iran' and 'Beijing' is the capital of 'China'.

32. (d) Second term = (First term)^3
∴ Fourth term = (Third term)^3

33. (c) Diseases are studied under Pathology. Similarly, planets are studied in Astronomy.

34. (c) The words in each pair are synonyms.

35. (d) As,   Similarly

$C \xrightarrow{+2} E$ $F \to H$

$G \xrightarrow{+2} I$ $J \to L$

36. (a) The three letters moved 5, 4, and 3 and steps forward respectively.

37. (d) $\left.\begin{array}{l} 211 \Rightarrow 2+1+1 = 4 \\ 333 \Rightarrow 3+3+3 = 9 \end{array}\right] +5$

Similarly,

$\left.\begin{array}{l} 356 \Rightarrow 3+5+6 = 14 \\ 388 \Rightarrow 3+8+8 = 19 \end{array}\right] +5$

38. (b) As Wine is made up by grasp, similarly Vodka is made up by rye or wheat or potatoes .
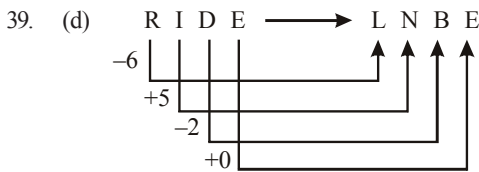
39. (d)
```
    R  I  D  E  ──────▶  L  N  B  E
 -6 |
    +5 |
       -2 |
          +0 |
```
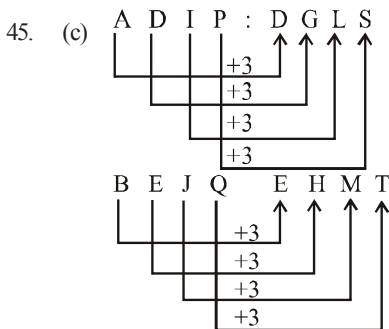Similarly Help $\to$ BJJP

40. (b) $\dfrac{3}{7} = \dfrac{15}{x}$

$3x = 15 \times 7$
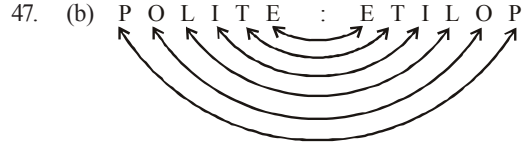
$x = \dfrac{15 \times 7}{3} = 35$

41. (b) Meghdoot has been written by Kalidas. Similarly, Arthashastra has been written by kautitya.

42. (c) Ocean is the mass of water Similarly, Desert is the mass of sand.

43. (d) $A \xrightarrow{+2} C$ Similarly $X \xrightarrow{-2} V$

$B \xrightarrow{+2} D$ $Y \xrightarrow{-2} W$

$C \xrightarrow{+2} E$ $Z \xrightarrow{-2} X$

44. (b) $8^3 \to 512$

$9^3 \to 729$

45. (c)
```
A  D  I  P  :  D  G  L  S
           +3
           +3
           +3
           +3
B  E  J  Q     E  H  M  T
           +3
           +3
           +3
           +3
```

46. (c) Pen is used by an author. Similarly, stethoscope is used by a doctor.

47. (b) P O L I T E : E T I L O P

Letters are written in reverse order. So, SINGLE : ELGNIS is the correct option.

48. (c) Love and Hate are opposite words. Similarly, deep and shallow are opposites.
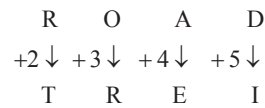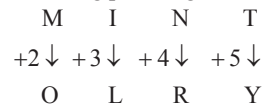
49. (a) 18636 : 3106 : : 2508 : 418

      $18636 \div 6$ $2508 \div 6$

50. (d)
```
L  P  :  Q  U  : :  V  X  :  A  C
  +4       +4         +2       +2
```

51. (a) Jute is used to make sacks like that wood is used to make furniture.

52. (d) Here, every letter of the word ROAD follow the pattern is like +2, +3, +4, +5.

     R   O   A   D

$+2\downarrow$ $+3\downarrow$ $+4\downarrow$ $+5\downarrow$

     T   R   E   I

Similarly, every letter in the word 'MINT' follow the following pattern given in the above

     M   I   N   T

$+2\downarrow$ $+3\downarrow$ $+4\downarrow$ $+5\downarrow$

     O   L   R   Y

53. (c) Film is produced by producer and poem is written by poet.

54. (a) Here the position of numbers are interchage only.

```
5   9   6          8   2   4
  ✕              So, for  ✕
9   6   5          2   4   8
```
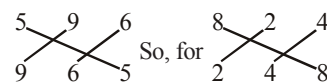
55. (c) The pattern is as —

$35 + 31 = 66$

$29 + 31 = \boxed{60}$

56. (a) As, Pentagon has five sides. Similarly, Rectangle has four sides.

57. (a) As, Red is related to colour, Similarly Lawyer is related to Profession.

58. (a) As,
```
J  T     N  X
     +4
       +4
```
Similarly,
```
T  P     X  T
     +4
       +4
```

59. (a) 'Exhausted' is synonyms of 'Tired'. Similarly 'Depressed' is synonyms of 'Sad'.

60. (c) As 'Hydrometer' used for measuring 'Density'. Similarly 'Balance' used for measuring 'Mass'.
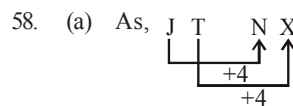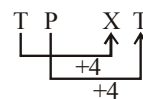
61 (d) As,
$425 \rightarrow 4+2+5=11$
$902 \rightarrow 9+0+2=11$
$713 \rightarrow 7+1+3=11$
Similarly,
$218 \rightarrow 2+1+8=11.$

62. (c) As,
$2+0=2$ and $8-6=2$
Similarly,
$1+2=3$ and $3-0=3$
As,
$6+8=14=1+4=5 \rightarrow \dfrac{20}{5}=4$
Similarly,
$3+0=3 \rightarrow \dfrac{12}{3}=4$

63. (d) As,

$$6+21=27$$

F H K O   :   U Q N L
  +2 +3 +4   −4 −3 −2

Similarly,

$$13+14=27$$

M O R V   :   N J G E
  +2 +3 +4   −4 −3 −2
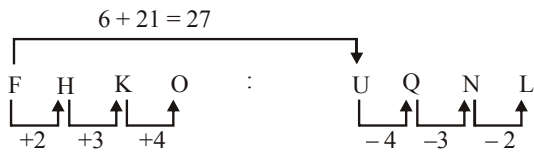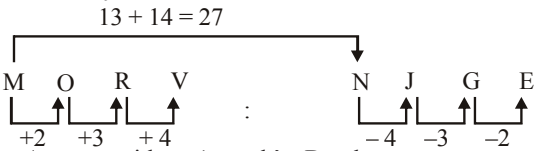
64. (a) A person withour 'speech' = Dumb
A person without 'sight' = Blind
Similarly:-
A person without 'sound' = Deaf

65. (d) $31:48$
Difference is $48-31=17$
Taking Option (d)
Difference is $54-37=17$
Option (d) is correct.

66. (d) $16:38::26:58::37:?$
$16 \times 2+6=38$
$26 \times 2+6=58$
$37 \times 2+6=80$
Option (d) is correct.

67. (d) $GOOD:HSXT::BEST:CIBJ::COOL:?$

G   O   O   D   B   E   S   T
+1 +4 +9 +16   +1 +4 +9 +16
H   S   X   T   C   I   B   J

C   O   O   L
+1 +4 +9 +16
D   S   X   B

68. (b)

$$-2$$
M O B : K M Z
  -2 -2

Similary : Option (b)

$$-2$$
L O P : J M N
  -2 -2

69. (c) $23:72::38:117::46:?$
$23 \times 3+3=72$
$38 \times 3+3=117$
Similarly :-
$46 \times 3+3=\boxed{141}$

Classification

What is classification?

You must have in your mind that what does classification mean. In fact, in classification we take out an element out of some given elements and the element to be taken out is different from the rest of the elements in terms of common properties, shapes, sizes, types, nature, colours, traits etc. In this way the rest of the elements form a group and the element that has been taken out is not the member of that group as this single element does not possesses the common quality to be possessed by rest of the elements. For example, if we compare the elements like, lion, cow, tiger, panther, bear and wolf then we find that this is a group of animals. How do we classify them? To understand this let us see the presentation given below :-

Lion	Cow	Tiger	Panther	Bear	Wolf
↓	↓	↓	↓	↓	↓
Wild animal	Domestic animal	Wild animal	Wild animal	Wild animal	Wild animal

Here, if we want to separate out one animal then definitely that animal will be cow because cow is the only animal in the group which is a domestic animal. Rest of the animals (Lion, Tiger, Panther, Bear and Wolf) are wild animals. Hence rest of the animals (Lion, Tiger, Panther, Bear & Wolf) form a group of wild animals separating out the domestic animal (Cow).

Similarly, out of 6 letters A, M, N, U, P & Q, we will take out A and form a group of 5 letters M, N, U, P & Q because out of given six letters only A is a vowel while rest of the letters form a group of consonants.

Types of classification :

(1) Letter/meaningless word based classification

(2) Meaningful word based classification

(3) Digit based classification

(4) General knowledge based classification

Now we will discuss these three types of classifications one by one:-

(1) Letter/meaningless word based classification :- Such classifications are based on letters of English alphabet. So many groups of letters are given in the question in which one group is different from remaining groups and hence the different group will be our answer.

EXAMPLE ➤ **1. Find the odd word out of the following options.**

(a) PQT	(b) UVY
(c) DEH	(d) IJN

Sol. (a) P Q (R S) T (b) U V (W X) Y
2 letter gap — 2 letter gap

(c) D E (F G) H (d) I J (K L M) N
2 letter gap — 3 letter gap

As it is clear that except option (d) all the other options have 2 letters gap between 2nd and third letters and the 1st two letters are in consecutive order. While in case of option (d) 1st two letters are in consecutive order but there is 3 letters gap between 2nd and third letter separating it out of the remaining group of the letters. Hence option (d) is the correct option.

EXAMPLE ➤ **2. Following are given four options and out of them 3 form a group in terms of some similarity. Find out the option which does not fit into that group.**

(a) LMNO – ONML	(b) PQRS – SRQP
(c) IJKL – LKJI	(d) UVWX – VUXW

Sol. (a) $\begin{vmatrix} L \\ 1 \end{vmatrix}\begin{vmatrix} M \\ 2 \end{vmatrix}\begin{vmatrix} N \\ 3 \end{vmatrix}\begin{vmatrix} O \\ 4 \end{vmatrix} \longrightarrow \begin{vmatrix} O \\ 4 \end{vmatrix}\begin{vmatrix} N \\ 3 \end{vmatrix}\begin{vmatrix} M \\ 2 \end{vmatrix}\begin{vmatrix} L \\ 1 \end{vmatrix}$

(b) $\begin{vmatrix} P \\ 1 \end{vmatrix}\begin{vmatrix} Q \\ 2 \end{vmatrix}\begin{vmatrix} R \\ 3 \end{vmatrix}\begin{vmatrix} S \\ 4 \end{vmatrix} \longrightarrow \begin{vmatrix} S \\ 4 \end{vmatrix}\begin{vmatrix} R \\ 3 \end{vmatrix}\begin{vmatrix} Q \\ 2 \end{vmatrix}\begin{vmatrix} P \\ 1 \end{vmatrix}$

(c) $\begin{vmatrix} I \\ 1 \end{vmatrix}\begin{vmatrix} J \\ 2 \end{vmatrix}\begin{vmatrix} K \\ 3 \end{vmatrix}\begin{vmatrix} L \\ 4 \end{vmatrix} \longrightarrow \begin{vmatrix} L \\ 4 \end{vmatrix}\begin{vmatrix} K \\ 3 \end{vmatrix}\begin{vmatrix} J \\ 2 \end{vmatrix}\begin{vmatrix} I \\ 1 \end{vmatrix}$

(d) $\begin{vmatrix} U \\ 1 \end{vmatrix}\begin{vmatrix} V \\ 2 \end{vmatrix}\begin{vmatrix} W \\ 3 \end{vmatrix}\begin{vmatrix} X \\ 4 \end{vmatrix} \longrightarrow \begin{vmatrix} V \\ 2 \end{vmatrix}\begin{vmatrix} U \\ 1 \end{vmatrix}\begin{vmatrix} X \\ 4 \end{vmatrix}\begin{vmatrix} W \\ 3 \end{vmatrix}$

Above presentation makes it clear that (d) does not fit into the groups.

2. Meaningful words based classification :- In such type of classification we have to take odd word out of the given group of meaningful words.

EXAMPLE ▶ 3. Which one of the following words is not a part of the group formed by remaining words. The remaining words form the group on the basis of certain similarity.

(a) Name (b) Game
(c) Fame (d) Shame

Sol. (d) is the correct answer because this is the only word which has 5 letters while the remaining words have 4 letters and hence options (a), (b), & (c) form a group separating out option (d).

EXAMPLE ▶ 4. Find the odd number out.

(a) 122 (b) 128 (c) 199 (d) 200

Sol.: Option (c) is the correct option because this is an odd number while all the other options are even numbers.

EXAMPLE ▶ 5. Find the odd man out.

(a) Patna (b) Mumbai
(c) Madhya Pradesh (d) Bangluru

Sol.: Option (c) is the correct answer because Madhya Pradesh is an Indian state while all other options are capitals of Indian states. Patna is the capital of Bihar; Mumbai is the capital of Maharashtra; Kolkata is the capital of West Bengal and Bangluru is the capital of Karnataka. In case of Madhya Pradesh (it is an Indian state), we can say that it has its capital in Bhopal.

EXERCISE

1. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    (a) 29 (b) 85
    (c) 147 (d) 125

2. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    (a) Crow (b) Vulture
    (c) Bat (d) Ostrich

3. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    (a) Food : Hunger (b) Water : Thirst
    (c) Air : Suffocation (d) Talent : Education

4. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
    (a) Teacher (b) Engineer
    (c) Architect (d) Doctor

5. Four of the following five are alike in a certain way and hence form a group. Which one of the following does not belong to that group?
    (a) 126 (b) 122
    (c) 65 (d) 50

6. Four of the following five are alike in a certain way and hence form a group. Which one of the following is different from the group?
    (a) 226 (b) 290
    (c) 360 (d) 170

7. Four of the following five are alike in a certain way and hence form a group. Find the one which is different from the other four.
    (a) Rice (b) Wheat
    (c) Barley (d) Mustard

8. Four of the following five are alike in a certain way and hence from a group. Find the one which is different from the other four.
    (a) Arrow (b) Sword
    (c) Knife (d) Axe

9. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to the group?
    (a) 169 (b) 179
    (c) 135 (d) 149

10. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to the group'?
    (a) Listen (b) Feel
    (c) Think (d) Sing

11. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    (a) Jowar (b) Wheat
    (c) Mustard (d) Bajra

12. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    (a) Volume (b) Size
    (c) Large (d) Shape

13. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    (a) Guava (b) Orange
    (c) Apple (d) Lichi

14. Four of the following five are alike in a certain way and so from a group. Which is the one that **does not** belong to that group?
    (a) Aluminium (b) Copper
    (c) Mercury (d) Iron

15. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    - (a) 143
    - (b) 63
    - (c) 257
    - (d) 15

16. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
    - (a) May
    - (b) December
    - (c) July
    - (d) January

17. Four of the following five are alike in a certain way and so form a group. Which his the one that **does not** belong to that group?
    - (a) Jackal
    - (b) Cheetah
    - (c) Tiger
    - (d) Dog

18. Four of the following five are alike in a certain way and so form a group. Which is the that does not belong to that group?
    - (a) Cheese
    - (b) Butter
    - (c) Milk
    - (d) Curd

19. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
    - (a) Anxiety
    - (b) Anger
    - (c) Feeling
    - (d) Joy

20. Four of the following five words are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    - (a) Three
    - (b) Four
    - (c) Five
    - (d) Six

21. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
    - (a) Anxiety
    - (b) Worry
    - (c) Inhibition
    - (d) Curiosity

22. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
    - (a) Touch : Skin
    - (b) Tongue : Taste
    - (c) Hear : Ears
    - (d) See : Eye

23. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
    - (a) 170
    - (b) 226
    - (c) 120
    - (d) 290

24. Four of the following five are alike in a certain way and so form a group. Which is the one that does not belong to that group?
    - (a) Cat
    - (b) Horse
    - (c) Lion
    - (d) Jackal

25. In a certain code language the word NUMERICAL is written as LMUIREACN. How will the word PUBLISHED be written in that language?

    - (a) DUBSILEHP
    - (b) DBULISEHP
    - (c) DUBILSEHP
    - (d) DBUSILEHP

26. A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
    Four of the following five letter groups of the English alphabet given above are alike in a certain way and so form a group. On the basis of their position in English alphabet, which is the one that does not belong to the group?
    - (a) DKG
    - (b) FMI
    - (c) HOL
    - (d) JQM

27. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    - (a) Pear
    - (b) Jackfruit
    - (c) Watermelon
    - (d) Papaya

28. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    - (a) Pencil
    - (b) Sharpener
    - (c) Blackboard
    - (d) Chalk

29. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    - (a) 131
    - (b) 133
    - (c) 143
    - (d) 87

30. Four of the following five are alike in a certain way and so form a group. Which is one that **does not** belong to that group?
    - (a) Tortoise
    - (b) Snake
    - (c) Rat
    - (d) Mongoose

31. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    - (a) 168
    - (b) 728
    - (c) 290
    - (d) 380

32. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group?
    - (a) Swan
    - (b) Crocodile
    - (c) Chicken
    - (d) Snake

33. Four of the following five are alike in a certain way and so form a group. Which is the one that **does not** belong to that group
    - (a) Coriander
    - (b) Potato
    - (c) Beetroot
    - (d) Onion

34. Four of the following letter-number groups are similar in connection with the position of these letters in the English alphabet and hence form a group. Which one does not belong the group?
    - (a) PY8
    - (b) JR6
    - (c) RV3
    - (d) DG2

DIRECTIONS: *In questions no. 35 to 37, select the one which is different from the other three alternatives.*
[SSC Multitasking-2014]

35. (a) 42 – 49　　　　　(b) 35 – 62
    (c) 63 – 70　　　　　(d) 28 – 21
36. (a) Engineer　　　　(b) School
    (c) Lawyer　　　　　(d) Doctor
37. (a) SRPQ　　　　　(b) YWTV
    (c) IHFG　　　　　(d) NMKL

DIRECTIONS (Qs. 38 to 40): *Find the odd number/letters/ words from the given alternatives.* **[SSC Multitasking-2016]**

38. (a) KILOMETERS　　　(b) KILOGRAMS
    (c) TONNES　　　　　(d) QUINTALS
39. (a) JKNQ　　　　　(b) DEGJ
    (c) YZBE　　　　　(d) QRTW

40. (a) 154　　　　　　(b) 119
    (c) 85　　　　　　(d) 5
41. In the following question, select the odd word from the given alternatives. **[SSC Multitasking-2017]**
    (a) Metre　　　　　(b) Kilometre
    (c) Centimetre　　　(d) Litre
42. In the following question, select the odd number pair from the given alternatives. **[SSC Multitasking-2017]**
    (a) 24 : 47　　　　　(b) 16 : 31
    (c) 28 : 55　　　　　(d) 32 : 65
43. In the following question, select the odd letters from the given alternatives. **[SSC Multitasking-2017]**
    (a) ACEG　　　　　(b) MOQS
    (c) FHIK　　　　　(d) PRTV

Hints & Explanations

1. (c) All other numbers are in the form of $n^2 + 4$ where n is a natural number.
2. (c) Except it others are birds whereas bat is a mammal
3. (d) Lack of first one causes second one.
4. (a) All the rest are exclusive professions while a teacher may, be there in any of these categories.
5. (a) The rest are based on the expression $x^2 + 1$.

   But $126 = 11^2 + 5$.
6. (c) After a close look you will get that except 360 each number is one more than square of a natural number, i.e., $226 = 15^2 + 1$; $290 = 17^2 + 1$; $170 = 13^2 + 1$; $122 = 11^2 + 1$
7. (d) Except 'mustard' each belongs to the same category, viz food grains. Mustard is an oilseed.
8. (a) All others are held in the hand and not shot out.
9. (a) The rest are not squares of a number.
10. (d) All others are the features of sense organes.
11. (c) Mustard is an oilseed while the rest are foodgrains.
12. (c) 'Large' is an adjective whereas others are noun.
13. (d) Lichi has only one seed inside whereas others have many seeds.
14. (c) All others are found in solid state while mercury is found in liquid state.
15. (c) The given numbers can be written as follows:
    $143 = 12^2 – 1$; $63 = 8^2 – 1$; $195 = 14^2 – 1$;
    $15 = 4^2 – 1$
    But, $257 = 16^2 + 1$
    Obviously, except 257, others can be written in the form $x^2 – 1$.

16. (a) Except it others are either followed or preceded by a month of 31 days.
17. (d) Others are wild animals.
18. (c) Others are the products made from 'milk.
19. (c) All others are specific feelings.
20. (d) All others have two vowels.
21. (d) All others are negative.
22. (b) Others represent sensation and respective organs. Here the order is reversed.
23. (c) 170 can be written as $(13^2 + 1)$. Similarly, 226, 290 and 362 can be written as $(15^2 + 1)$, $(17^2 + 1)$ and $(19^2 + 1)$ respectively. In general, they can be written as $(x^2 + 1)$. But 120 is $(11^2 – 1)$.
24. (b) Others are carnivores (an animal that eats meat).
25. (d) The positions change as follows : I → 9, 2 → 3, 3 → 2, 4 → 6, 5 → 5, 6 → 4, 7 → 8, 8 → 7, 9 → 1.
26. (c) In all others, the sequence is that of +7 and –4 respectively.
27. (c) Except it all others have trees.
28. (b) Except it all others are used for writing purpose.
29. (a) Except it all others are non-prime numbers.
30. (b) All others have feet.
31. (d) Except it other numbers are either 1 less or 1 more than a perfect square number.
32. (c) Chicken is young one of hen.
33. (a) Except it others are obtained below the ground.
34. (b) In all others, the digit indicates the gap between the two letters.

35. (b) Except (b) all others are divisible by 7.

36. (c) Except (b) others are connected with a job that needs special skill, while school is an organisation.

37. (b)
   (a) $S \xrightarrow{-1} R \xrightarrow{-2} P \xrightarrow{+1} Q$
   (b) $Y \xrightarrow{-2} W \xrightarrow{-3} T \xrightarrow{+2} V$ odd one out
   (c) $I \xrightarrow{-1} H \xrightarrow{-2} F \xrightarrow{+1} G$
   (d) $N \xrightarrow{-1} M \xrightarrow{-2} K \xrightarrow{+1} L$

38. (a) Kilograms, tonnes and quintals are units of mass. Kilometer is a unit of distance.

39. (a) $J \xrightarrow{+1} K \xrightarrow{+3} N \xrightarrow{+3} Q$

   $D \xrightarrow{+1} E \xrightarrow{+2} G \xrightarrow{+3} J$

   $Y \xrightarrow{+1} Z \xrightarrow{+2} B \xrightarrow{+3} E$

   $Q \xrightarrow{+1} R \xrightarrow{+2} T \xrightarrow{+3} W$

   So, JKNQ is the correct option.

40. (a) 154. All other numbers are multiples of 17.

41. (d) Metre, Kilometre and Centimetre are units of length. Litre is the unit of volume.
   So, option (d) is correct.

42. (d) $24 : 47 \to 24 \times 2 - 1 = 47$
   $16 : 31 \to 16 \times 2 - 1 = 31$
   $28 : 55 \to 28 \times 2 - 1 = 55$
   $32 : 65 \to 32 \times 2 + 1 = 65$

43. (c) $ACEG \Rightarrow A \xrightarrow{+2} C \xrightarrow{+2} E \xrightarrow{+2} G$

   $MOQS \Rightarrow M \xrightarrow{+2} O \xrightarrow{+2} Q \xrightarrow{+2} S$

   $FHIK \Rightarrow F \xrightarrow{+2} H \xrightarrow{+1} I \xrightarrow{+2} K$

   $PRTV \Rightarrow P \xrightarrow{+2} R \xrightarrow{+2} T \xrightarrow{+2} V$

3

Series

A series is a sequence of numbers/alphabetical letters or both which follow a particular rule. Each element of series is called 'term'. We have to analyse the pattern and find the missing term or next term to continue the pattern.

Types of series are explained in the following chart :

```
                            SERIES
    ┌─────────┬─────────┬─────────┬─────────┬─────────┐
 Number    Alphabet  Alpha-numeric  Mixed    Letter  Correspondence
 series     series      series     series    series      series
```

Number series	Alphabet series	Alpha-numeric series	Mixed series	Letter series	Correspondence series
A series that is made by only number or digit	A series that is made by only alphabetic letters	A series in which both alphabets and numbers are used	A series which is created by the combination of two or more than two series	A series of letters, which follow a certain pattern, is given with four / five times blank spaces in between. The order of missing letters is correct answer.	A series consists of three sequence with three different elements (for ex. capital letters, numbers and small letters). An element of each sequence is correspond to the element of other sequence on the basis of the similarity in position.

Number series
1. Ascending series
2. Descending series
3. Oscillating series

In number series, relationship between the terms is of any kind. For example.

(1) Consecutive even numbers

(2) Consecutive odd numbers

(3) Consecutive prime numbers

(4) Square of numbers

(5) Cubes of numbers

(6) Square root of numbers

(7) Omission of certain number of letter in any consecutive order

(8) Addition /subtraction/ multiplication/ division by some number (For Ex. A.P & G.P) or any other relation.

TYPES OF QUESTIONS :

(I)   Complete the series

(II) Find Missing number of the series

(III) Find Wrong number of the series

EXAMPLES ON NUMBER SERIES

(I)   Complete the series

EXAMPLE 1. Which of the following is the next term of series given below ?

4, 6, 9, 13, ...

(a) 17	(b) 18
(c) 19	(d) 20

Sol. (b) $\underset{+2 \ +3 \ +4 \ +5}{4 \quad 6 \quad 9 \quad 13 \quad \boxed{18}}$ Correct answer

EXAMPLE 2. Choose the next term of series given below.

64, 32, 16, 8, ?

(a) 0	(b) 1
(c) 2	(d) 4

Sol. (d) Each number is half of its previous number.

(II) To find the missing number of series :

EXAMPLE 3. What will come in place of question mark in the following series?

79, 87, ? , 89, 83

(a) 80,	(b) 81	(c) 82	(d) 88

Sol. (b) $\underset{+8 \ -6 \ +8 \ -6}{79 \quad 87 \quad \boxed{81} \quad 89 \quad 83}$

(III) To find the wrong term in the series :

EXAMPLE ✎ **4. Find the wrong term in the series**

3, 8, 15, 24, 34, 48, 63.

(a) 15   (b) 15   (c) 34   (d) 63

Sol. (c) $2^2 - 1, 3^2 - 1, 4^2 - 1, 5^2 - 1, 6^2 - 1$

EXAMPLES ON ALPHABETIC SERIES

EXAMPLE ✎ **5. What will come in place of question mark in the following series?**

G, H, J, M, ?

(a) R   (b) S   (c) Q   (d) P

Sol. (c)

$$G \underset{+1}{\frown} H \underset{+2}{\frown} J \underset{+3}{\frown} M \underset{+4}{\frown} \boxed{Q}$$

EXAMPLE ✎ **6. What will come in place of question mark in the following series?**

BF, CH, ? , HO, LT

(a) F G   (b) E K   (c) C E   (d) F J

Sol. (b)

$$\boxed{BF} \overset{+2}{\frown} \boxed{CH} \overset{+3}{\frown} \boxed{EK} \overset{+4}{\frown} \boxed{HO} \overset{+5}{\frown} \boxed{LT}$$
$$\underset{+1}{\smile} \underset{+2}{\smile} \underset{+3}{\smile} \underset{+4}{\smile}$$

EXAMPLES ON ALPHA-NUMERIC SERIES

EXAMPLE ✎ **7. What will come in place of question mark in the following series?**

K 1, M 3, P 5, T 7, ?

(a) Y 9   (b) Y 11

(c) V 9   (d) V 11

Sol. (b) Alphabets follow the sequence

$$K \overset{+2}{\frown} M \overset{+3}{\frown} P \overset{+4}{\frown} T \overset{+5}{\frown} Y$$

And numbers are increasing by 2

EXAMPLES ON MIXED SERIES

EXAMPLE ✎ **8. Complete the series**

Z, L, X, J, V, H, T, F, __, __

(a) D, R   (b) R, D

(c) D, D   (d) R, R

Sol. (b) The given sequence consists of two series

(i) Z, X, V, T, __

(ii) L, J, H, F, __. Both consisting of alternate letters in the reverse order.

∴   Next term of (i) series = R, and

 Next term of (ii) series = D

EXAMPLES ON LETTER SERIES

EXAMPLE ✎ **9. Which sequence of letters when placed at the blanks one after another will complete the given letter series?**

b a a b – a b a – b b a – –

(a) bbaa   (b) aaaa

(c) abab   (d) baba

Sol. (d) b a a b <u>b</u> a / b a a <u>a</u> b b a / <u>b a</u> .

EXERCISE

1. In the following number series a **wrong** number is given. Find out the **wrong** number.

   3 10 35 172 885 5346 37471

   (a) 10   (b) 5346   (c) 885   (d) 35

2. In the following number series a **wrong** number is given. Find out the **wrong** number.

   318 158 76 38 18 8 3

   (a) 38   (b) 18   (c) 158   (d) 76

DIRECTIONS (Qs. 3-7): *In each of these questions a number series is given. Only one number is wrong in each series. You have to find out the wrong number.*

3. 10 15 24 35 54 75 100

   (a) 35   (b) 75   (c) 24   (d) 15

4. 1 3 4 7 11 18 27 47

   (a) 27   (b) 11   (c) 18   (d) 7

5. 3 2 3 6 12 37.5 115.5

   (a) 37.5   (b) 12   (c) 6   (d) 2

6. 2 8 32 148 765 4626 32431

   (a) 765   (b) 148   (c) 8   (d) 32

7. 2 3 11 38 102 229 443

   (a) 11   (b) 229

   (c) 120   (d) 38

DIRECTIONS (Qs. 8-12): *In each of the following number series, a wrong number is given. Find out that number.*

8. 5 10 17 27 37 50 65

   (a) 10   (b) 17   (c) 27   (d) 37

9. 108 54 36 18 9 6 4

   (a) 54   (b) 36   (c) 18   (d) 9

10. 2 3 5 8 14 23 41 69

    (a) 5   (b) 8   (c) 69   (d) 41

11. 0 1 9 36 99 225 441
    (a) 9   (b) 36   (c) 99   (d) 225
12. 3 7.5 15 37.5 75 167.5 375
    (a) 167.5   (b) 75   (c) 37.5   (d) 15

DIRECTIONS (Qs. 13-17): *In each of the following questions, a number series is given in which one number is wrong. You have to find out that number and have to follow the new series which will be started by that number. By following this, which will be the third number of the new series?*

13. 1 2 6 33 148 765 4626
    (a) 46   (b) 124   (c) 18   (d) 72
14. 2 9 5 36 125 648 3861
    (a) 12   (b) 11   (c) 75
    (d) None of these
15. 3 4 12 45 190 1005 6066
    (a) 98   (b) 96   (c) 384   (d) 386
16. 6 10.5 23 59.5 183 644 2580
    (a) 183.5   (b) 182.5   (c) 183   (d) 182
17. 2 7 19 43 99 209 431
    (a) 181   (b) 183   (c) 87   (d) 85

DIRECTIONS (Qs.18-22): *In each of the following questions a number series is given with one wrong number. Find that wrong number.*

18. 2 3 6 15 45 156.5 630
    (a) 156.5   (b) 45
    (c) 15   (d) 6
19. 36 20 12 8 6 5.5 4.5
    (a) 5.5   (b) 6   (c) 12   (d) 20
20. 1 3 9 31 128 651 3913
    (a) 651   (b) 128   (c) 31   (d) 9
21. 2 3 10 40 172 885 5346
    (a) 3   (b) 855   (c) 40   (d) 172
22. 5 8 16 26 50 98 194
    (a) 8   (b) 26   (c) 50   (d) 16

DIRECTIONS (Qs.23-27): *In the following number series, a wrong number is given. Find out that wrong number.*

23. 2 11 38 197 1172 8227 65806
    (a) 11   (b) 38   (c) 197   (d) 1172
24. 16 19 21 30 46 71 107
    (a) 19   (b) 21   (c) 30   (d) 46
25. 7 9 16 25 41 68 107 173
    (a) 107   (b) 16   (c) 41   (d) 68
26. 4 2 3.5 7.5 26.25 118.125
    (a) 118.125 (b) 26.25   (c) 3.5   (d) 2
27. 16 4 2 1.5 1.75 1.875
    (a) 1.875   (b) 1.75   (c) 1.5   (d) 2
28. Which sequence of letters when placed at the blanks one after another will complete the given letter series ?
    ba _ b _ aab _ a _ b
    (a) abaa   (b) abba   (c) baab   (d) babb

29. Which sequence of letters when placed at the blanks one after another will complete the given letter series ?
    c _ bba _ cab _ ac _ ab _ ac
    (a) abcbc   (b) acbcb   (c) babcc   (d) bcacb
30. Which one number does not belong to theseries ?
    3, 5, 8, 11, 17, 23
    (a) 8   (b) 11   (c) 17   (d) 23
31. Which one number does not belong to the series ?
    905, 180, 175, 35, 30, 6, 1
    (a) 6   (b) 1   (c) 175   (d) 905
32. Which sequence of letters when placed at the blanks one after another will complete the given letter series ?
    abca _ bcaab _ ca _ bbc _ a
    (a) ccaa   (b) bbaa   (c) abac   (d) abba
33. What is the next number in this sequence ?
    1, 3, 8, 19, 42, 89, ?
    (a) 108   (b) 184   (c) 167   (d) 97
34. Which is the number that comes next in this sequence ?
    5, 16, 51, 158, ...
    (a) 1452   (b) 483   (c) 481   (d) 1454
35. Which one of the numbers will complete the series ?
    8, 13, 10, 15, 12, 17, 14 ... ?
    (a) 19   (b) 22   (c) 16   (d) 20
36. Find the next term of series :
    D I L Q T Y B G ?
    (a) H   (b) I   (c) J   (d) P
37. 3, 15, 4, 16, 5, 17, 6, ?, 7
    (a) 12   (b) 18   (c) 15   (d) 13
38. Find the missing term in the following series.
    240, ... 120, 40, 10, 2
    (a) 480   (b) 240   (c) 220   (d) 120
39. Find the missing term in the following series.
    BC FG JK __ RS VW
    (a) LM   (b) OP   (c) QR   (d) NO
40. Which sequence of letters when placed at the blanks one after another will complete the given letter series ?
    aa – bb – aa – abbbb – a
    (a) bbaa   (b) aabb   (c) baba   (d) abab
41. Which sequence of letters when placed at the blanks one after another will complete the given letter series ?
    ba _ b _ aab _ a _ b
    (a) abaa   (b) abba   (c) baab   (d) babb
42. Which sequence of letters when placed at the blanks one after another will complete the given letter series ?
    c _ bba _ cab _ ac _ ab _ ac
    (a) abcbc   (b) acbcb   (c) babcc   (d) bcacb
43. Which one number does not belong to the series ?
    3, 5, 8, 11, 17, 23
    (a) 8   (b) 11   (c) 17   (d) 23
44. Which one of the numbers is wrong in the series given below ?
    3, 2, 8, 9, 13, 22, 18, 32, 23, 42
    (a) 8   (b) 9   (c) 13   (d) 22

45. Which one of the numbers is wrong in the series given below ?
    12, 18, 27, 90, 270, 945, 3780
    (a) 12   (b) 18   (c) 945   (d) 27

46. aab – cc – daa – bbb – ccddd
    (a) bdbd   (b) ddca   (c) dbbc   (d) bdac

47. What number will come next in the following series : 2, 2, 4, 4, 6, 8, 8 ………
    (a) 10   (b) 12   (c) 14   (d) 16

48. Which number will fit in the following series 0, 7, 26, ?, 124, 215
    (a) 51   (b) 37   (c) 63   (d) 16

49. Complete the given series.
    2   12   36   80   150   ?
    (a) 194   (b) 210   (c) 252   (d) 258

50. Which numbers will come next in the following series? 1, 8, 9, 64, 25, 216, ?, ?
    (a) 49, 64   (b) 343, 64
    (c) 49, 512   (d) 343, 512

51. Which number will come next in the following set of numbers 3,13,53,213 — ?
    (a) 553   (b) 653   (c) 753   (d) 853

52. Which number will come next in the following set of numbers? 2, 5, 7, 12, 15, 17, 22…..
    (a) 25   (b) 26   (c) 27   (d) 28

53. Which number will come next in the following set of numbers 4, 16, 36,?, 100, 144
    (a) 72   (b) 68   (c) 81   (d) 64

54. Which number will come next in the following series 8,15,28,53,...?
    (a) 98   (b) 106   (c) 100   (d) 102

55. Find the missing number in the series : 6, 12, 21, ?, 48
    (a) 38   (b) 40   (c) 45   (d) 33

DIRECTIONS: *In question no. 56 and 57, a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.*
[SSC Multitasking-2014]

56. 7, 14, 23, 34, ?
    (a) 46   (b) 47
    (c) 44   (d) 45

57. AE, FJ, KO, ? UY
    (a) QN   (b) TQ
    (c) NP   (d) PT

DIRECTIONS (Qs. 58 and 59) : *A series is given with one term missing. Out of the four alternatives, choose the alternatives that will complete the series.*
[SSC Multitasking-2016]

58. ACE, GIK, ? SUW, YAC
    (a) MOQ   (b) MPQ
    (c) MOP   (d) MNP

59. 2, 5, 10, 17, 26, ?
    (a) 37   (b) 35
    (c) 38   (d) 33

60. In the following question, select the missing number from the given alternatives.   **[SSC Multitasking-2017]**
    ?, 28, 65, 126, 217, 344
    (a) 7   (b) 4
    (c) 9   (d) 5

61. A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.
    [SSC Multitasking-2017]
    J, O, T, Y, D, ?
    (a) I   (b) J
    (c) H   (d) K

62. Select the letter-pair that can replace the question mark (?) in the following series.   **[SSC Multitasking-2018]**
    RD, XJ, DP, JV, ?
    (a) QC   (b) PB
    (c) PC   (d) QB

63. Select the number that can replace the question mark (?) in the following series.   **[SSC Multitasking-2018]**
    600, 120, 30, 10, 5, ?
    (a) 4   (b) 5   (c) 3   (d) 2

64. In the following question, select the missing number from the given series.   **[SSC Multitasking-2018]**
    17, 31, 47, 65, ?
    (a) 87   (b) 89
    (c) 85   (d) 83

65. Select the number that can replace the question mark (?) in the following series.   **[SSC Multitasking-2019]**
    16, 20, 29, 45, 70, ?
    (a) 106   (b) 116
    (c) 96   (d) 126

66. Select the number that can replace the question mark (?) in the following series.   **[SSC Multitasking-2019]**
    31, 44, 58, 73, 89, ?
    (a) 105   (b) 106
    (c) 115   (d) 116

67. Select the letter-pair that can replace the question mark (?) in the following series.   **[SSC Multitasking-2019]**
    AR, CU, EX, GA, ?
    (a) JE   (b) ID
    (c) IF   (d) KF

68. Which number will replace the question mark (?) in the following number series?   **[SSC Multitasking-2020]**
    9, 12, 17, 26, 43, 76, ?, 270
    (a) 141   (b) 125
    (c) 133   (d) 154

69. Which number will replace the question mark (?) in the following number series? **[SSC Multitasking-2020]**
    19, 22, 28, 37, 40, ?, 55, 58
    (a) 43   (b) 49
    (c) 46   (d) 47

70. Which letter-cluster will replace the question mark (?) in the following series? **[SSC Multitasking-2020]**
    CBD, XYM, FEG, UVT, IHJ, ?
    (a) STR   (b) ORP
    (c) RSQ   (d) RQS

71. Select the number from the given options that can replace the question mark (?) in the following series.
    205, 222, 241, 264, 293, ? **[SSC Multitasking-2021]**
    (a) 346   (b) 324
    (c) 328   (d) 334

72. Select the option that can replace the question mark (?) in the following series. **[SSC Multitasking-2021]**
    B, D, G, L, S, ?
    (a) E   (b) F
    (c) D   (d) C

Hints & Explanations

1. (d) Series is $\times 2 + 2^2, \times 3 + 3^2, \times 4 + 4^2, ...$
2. (d) The series is $\div 2 - 1$ in each term.
3. (a) The series is $+5, +9, +13, +17 ...$. The difference in successive nos. $9 - 5 = 13 - 9 = 17 - 13 = ... = 4$. Hence, 35 is wrong. It should be 37.
4. (a) The sum of the first two nos. is the third no. Hence, 27 is wrong. It should be 29.
5. (b) The series is $\times 0.5 + 0.5, \times 1 + 1, \times 1.5 + 1.5 ....$ Hence, 12 is wrong. It should be 14.
6. (d) The series is $\times 2 + 2^2, \times 3 + 3^2, \times 4 + 4^2, \times 5 + 5^2 .....$ Hence, 32 is wrong. It should be 33.
7. (b) The series is $+ 1^3, + 2^3, + 3^3, + 4^3 .....$ Hence, 229 is wrong. It should be 227.
8. (c) The series is $+ 5, + 7, + 9, + 11, ...$
9. (d) The series is $\div 2, \div 1.5$ alternately.
10. (c) The series is an alternate series, having
    $S_1 = 2\ 5\ 14\ 41;\ \times 3 - 1$ in each term
    $S_2 = 3\ 8\ 23\ 69;\ \times 3 - 1$ in each term
11. (c) The differences are $1 - 0 = 1 = 1^3$; $9 - 1 = 8 = 2^3; 36 - 9 = 27 = 3^3; 99 - 36 = 63 \neq 4^3$, but $100 - 36 = 64 = 4^3; 225 - 100 = 125 = 5^3$; $441 - 225 = 216 = 6^3$
12. (a) The series is $\times 2.5, \times 2$ alternately.
13. (c) The series is $\times 1 + 1^2, \times 2 + 2^2, \times 3 + 3^2, \times 4 + 4^2....$
14. (d) The series is $\times 1 + 7, \times 2 - 11, \times 3 + 15....$
15. (d) The series is $\times 1 + 1^2, \times 2 + 2^2, \times 3 + 3^2, \times 4 + 4^2....$
16. (a) The series is $\times 1.5 + 1.5, \times 2 + 2, \times 2.5 + 2.5, \times 3 + 3 ....$
17. (b) The series is $\times 2 + 3, \times 2 + 5, \times 2 + 7, \times 2 + 9....$
18. (a) The series is $\times 1.5, \times 2, \times 2.5, \times 3$ and so on.
19. (a) The series is $- 16, - 8, - 4, - 2, - 1, 0.5$, and so on.
20. (b) The series is $\times 1 + 2, \times 2 + 3, \times 3 + 4$, and so on.
21. (c) The series is $\times 1 + 1^2, \times 2 + 2^2, \times 3 + 3^2$ and so on.
22. (d) The series is $\times 2 - 2$
23. (d) The series $\times 3 + 5, \times 4 - 6, \times 5 + 7, \times 6 - 8....$
24. (a) The series is $+ 1^2, + 2^2, + 3^2, + 4^2, ...$
25. (d) The series is $7 + 9 = 16; 16 + 9 = 25;$ $25 + 16 = 41; 41 + 25 = 66; 66 + 41 = 107...$
26. (c) The series is $\times 0.5, \times 1.5, \times 2.5, \times 3.5, ...$
27. (b) The series is $\times 0.25, \times 0.5, \times 0.75, \times 1, ...$
28. (b) ba<u>a</u>b/<u>b</u>aab/<u>b</u>aab
29. (b) c<u>a</u>bbac/cab<u>b</u>ac/c<u>a</u>bbac.

30. (b) Differences between two consecutive terms are 2, 3, 4, 5 and 6 respectively.
31. (d) The sequence followed in the series is $\div 5, -5$ which is repeated.

    900   180   175   35   30   6   1
    $\underbrace{}_{\div 5}\ \underbrace{}_{-5}\ \underbrace{}_{\div 5}\ \underbrace{}_{-5}\ \underbrace{}_{\div 5}\ \underbrace{}_{-5}$

    $\therefore$ 900 should be in place of 905.
32. (c) The series is abc/a<u>a</u>bc/aab<u>b</u>c/aabbc<u>c</u>/a.
33. (b) Each of the numbers is doubled and 1, 2, 3, 4, 5, 6 is added in turn, so $89 \times 2 + 6 = 184$.
34. (c) $16 = 5 \times 3 + 1, 51 = 16 \times 3 + 3,$
    $158 = 51 \times 3 + 5$
    $\therefore$ Next term $= 158 \times 3 + 7 = 481$
35. (a) Second term is greater than first term by 5, while the third term is less than the second term by 3. The same order is repeated.
36. (c) After D, 4 letters are skipped and I follows after which 2 letters are skipped Trend flows alternatively :
    D(EFGH) I (JK) L(MNOP) Q (RS) T(UVWX) Y(ZA) B(CDEF) G(HI) J.
37. (b) There are two alternate series.
    1st series : 3, 4, 5, 6, 7 .... and so on.
    2nd series : 15, 16, 17, 18, 19 .... and so on.
38. (b) Ratios of two consecutive terms are 1, 1/2, 1/3, 1/4, and 1/5 respectively.
39. (d) $\text{BC} \xrightarrow{+3} \text{FG} \xrightarrow{+3} \text{JK} \xrightarrow{+3} \boxed{\text{NO}} \xrightarrow{+3} \text{RS}$
40. (a) a a <u>b</u> b / b <u>b</u> a a / <u>a</u> a b b / b b <u>a</u> a.
41. (b) ba<u>a</u>b/<u>b</u>aab/<u>b</u>aab
42. (b) c<u>a</u>bbac/cab<u>b</u>ac/c<u>a</u>bbac.
43. (b) Differences between two consecutive terms are 2, 3, 4, 5 and 6 respectively.
44. (b) There are 2 series :
    3, 8, 13, 18, 23 and 2, 12, 22, 32, 42. Hence 9 is wrong.
45. (d) If 27 is replaced by 36, then the ratios of two consecutive terms are 3/2, 2, 5/2, 3, etc.
46. (d) a a <u>b</u> b c c <u>d</u> d / a a <u>a</u> b b b <u>c</u> c c d d d
47. (d) The given series consists of 2 series
    (i) 2, 4, 6, 8 ....   (ii) 2, 4, 8 ....
    Series (i) $\to 2\times 1, 2 \times 2, 2 \times 3, 2 \times 4 ....$
    Series (ii) $\to 2, 2\times 2, 4 \times 2, 8 \times 2 = 16 ....$

48. (c) Clearly the given series is $1^3 - 1$, $2^3 - 1$, $3^3 - 1$, $4^3 - 1$, $5^3 - 1$, $6^3 - 1$.
So, the missing number is $4^3 - 1 = 64$.

49. (c) $1^3 + 1^2 = 2$, $2^3 + 2^2 = 12$, $3^3 + 3^2 = 36$ and so on ∴ $6^3 + 6^2 = 252$

50. (c) The odd terms are squares of the numbers 1,3,5,.... while the even terms are cubes of the numbers 2,4,6,....

51. (d) The difference in consecutive nos. follows the sequence, 10, 40, 160.
So the next difference $= 160 \times 4 = 640$
Therefore number $= 213 + 640 = 853$.

52. (a) $2 + 3 = 5$, $5 + 2 = 7$, $7 + 5 = 12$, $12 + 3 = 15$, $15 + 2 = 17$, $17 + 5 = 22$. Note that 3,2,5 are being added that order to various numbers to get the next number. Therefore, 3 should be added to 22 to get the answer.

53. (d) The numbers in the series are square of 2,4,6 ...,10,12 . Therefore, the missing number is square of 8 i.e. $8^2 = 64$.

54. (d) $8 \times 2 - 1 = 15$, $15 \times 2 - 2 = 28$, $28 \times 2 - 3 = 53$, $53 \times 2 - 4 = 102$

55. (d) The common differences between the consecutive terms of the series are 6, 9, 12, 15, etc.

56. (b)

7   14   23   34   (47)
+7   +9   +11   +13

57. (b) A $\xrightarrow{+5}$ F $\xrightarrow{+5}$ K $\xrightarrow{+5}$ $\boxed{P}$ $\xrightarrow{+5}$ U

E $\xrightarrow{+5}$ J $\xrightarrow{+5}$ O $\xrightarrow{+5}$ $\boxed{T}$ $\xrightarrow{+5}$ Y

58. (a) A $\xrightarrow{+2}$ C $\xrightarrow{+2}$ E

G $\xrightarrow{+2}$ I $\xrightarrow{+2}$ K

S $\xrightarrow{+2}$ U $\xrightarrow{+2}$ W

Similarly M $\xrightarrow{+2}$ O $\xrightarrow{+2}$ Q

59. (a)

2   5   10   17   26   37
+3   +5   +7   +9   +11

60. (c) 28,   65,   126,   217,   344
↓   ↓   ↓   ↓   ↓
$3^3 + 1$ $4^3 + 1$ $5^3 + 1$ $6^3 + 1$ $7^3 + 1$
So, missing number $= 2^3 + 1 = 9$

61. (a) J, O, T, Y, D, $\boxed{I}$
J $\xrightarrow{+5}$ O $\xrightarrow{+5}$ T $\xrightarrow{+5}$ Y $\xrightarrow{+5}$ D $\xrightarrow{+5}$ I

62. (b) Here in the letter pair 5 letter are omitted in alphabetical sequence. The following diagram gives you the more clear picture:

+6   +6   +6   +6
R D   X J   D P   J V $\boxed{P\ B}$
+6   +6   +6   +6

Hence PB can replace the question mark.

63. (b) 600, 120, 30, 10, 5 ?
The pattern is follow like as

$\boxed{5 \times 1 = 5}$
$5 \times 2 = 10$
$10 \times 3 = 30$
$30 \times 4 = 120$
$120 \times 5 = 600$

64. (c) 17, 31, 47, 65, ?
The difference b/w two numbers are from right to left
$31 - 17 = 14$
$47 - 31 = 16$
$65 - 47 = 18$
Hence the pattern is

+2   +2   +2
14   16   18   20
Hence $65 + 20 = $ (85)

65. (a) The series is as –

16   20   29   45   70 $\boxed{106}$
+4   +9   +16   +25   +36
$(2)^2$ $(3)^2$ $(4)^2$ $(5)^2$ $(6)^2$

66. (b) The pattern of the series is as –

31   44   58   73   89 $\boxed{106}$
+13   +14   +15   +16   +17

67. (b) The pattern of the series is as —

A R   C U   E X   G A $\boxed{I\ D}$
+2   +2   +2   +2
+3   +3   +3   +3

68. (a) Pattern of the series is,

9   1 2   1 7   2 6   4 3   7 6   (141)   270
+3   +5   +9   +17   +33   +65   +129
+2   +4   +8   +16   +32   +64

69. (c) Pattern of the series is,

19   2 2   2 8   3 7   4 0   (4 6)   5 5   58
3   6   9   3   6   9   3

70. (c) $C + X = 27$ and $F + U = 27$
$B + Y = 27$ and $E + V = 27$
$D + W = 27$ and $G + T = 27$
Similarly,
$I + \boxed{R} = 27$
$H + \boxed{S} = 27$
$J + \boxed{Q} = 27$

71. (b)

205,   222,   241,   264,   293,   (324)
17   19   23   29   31 $\longrightarrow$ Prime numbers

72. (c)

B,   D,   G,   L,   S,   (D)
+2   +3   +5   +7   +11 $\longrightarrow$ Prime numbers

4

Coding-Decoding

In this segment of commonsense reasoning, secret messages or words have to be decoded. They are coded as per a definite pattern/ rule which should be identified 1st. Then the same is applied to decode another coded word. Under this segment you come across two types of coding letter coding and number coding.

TYPE I (CODING BY LETTER SHIFTING)

Pattern 1: Coding in forward sequence

Example: If 'GOOD' is coded as 'HPPE', then how will you code 'BOLD'?

Explanation: Here, every letter of the word 'Good' shifts one place in forward alphabetical sequence. Let us see:

$$
\begin{array}{cccc}
G & O & O & D \\
+1\downarrow & +1\downarrow & +1\downarrow & +1\downarrow \\
H & P & P & E
\end{array}
$$

Similarly, every letter in the word 'BOLD' will move one place in forward alphabetical sequence as given below:

$$
\begin{array}{cccc}
B & O & L & D \\
+1\downarrow & +1\downarrow & +1\downarrow & +1\downarrow \\
C & P & M & E
\end{array}
$$

∴ Code for 'BOLD' will be 'CPME'.

Pattern 2: Coding in backward sequence.

Example: If 'NAME' is coded as 'MZLD', then how will code SAME?

Explanation: Here, every letter of the word 'MZLD' moves one place in backward alphabet sequence. Let us see:

$$
\begin{array}{cccc}
N & A & M & E \\
-1\downarrow & -1\downarrow & -1\downarrow & -1\downarrow \\
M & Z & L & D
\end{array}
$$

Similarly, every letter of the word 'SAME' will move one place in backward alphabet sequence. Let us see :

$$
\begin{array}{cccc}
S & A & M & E \\
-1\downarrow & -1\downarrow & -1\downarrow & -1\downarrow \\
R & Z & L & D
\end{array}
$$

∴ Code for 'SAME' will be 'RZLD'.

Pattern 3: Coding based on skipped sequence.

Example: If the word 'FACT' is coded as 'IDFW'; then how will you code 'DEEP'?

Explanation: Here, you see that 2 letters are omitted in alphabetic sequence. The following diagram gives you the more clear picture :

$$
\begin{array}{cccc}
F & A & C & T \\
+3\downarrow & +3\downarrow & +3\downarrow & +3\downarrow \\
I & D & F & W
\end{array}
$$

Clearly,   'F' (skip 2 letters) 'I'

'A' (skip 2 letters) 'D'

'C' (skip 2 letters) 'F'

'T' (skip 2 letters) 'W'

Similarly, 'DEEP' can be coded. Let us see :

$$
\begin{array}{cccc}
D & E & E & P \\
+3\downarrow & +3\downarrow & +3\downarrow & +3\downarrow \\
G & H & H & S
\end{array}
$$

∴   Code for 'DEEP' will be 'GHHS'.

TYPE II (CODING BY ANALOGY)

Example: If 'RPTFA' stands for 'BLADE', how will you code 'BALE'.

Explanation: Here, 'BLADE' has been coded as 'RPTFA'. You will see that all the letters in the word 'BALE', which have to be coded, are also there in the word 'BLADE'. Hence, all that needs to be done is to choose the relevant code letters from the code word 'RPTFA'. Therefore, B becomes R, A becomes T, L becomes P, and E becomes A. Therefore, 'BALE' will be coded as 'RTPA'.

∴   Correct answer is 'RPTA'.

TYPE III (CODING BY REVERSING LETTERS)

Example: If 'TEMPERATURE' is coded as 'ERUTAREPMET', then how will you code 'EDUCATION' following the same scheme.

Explanation: Here, the word 'TEMPERATURE' has been reversed. Hence, the code for 'education' will be 'NOITACUDE'.

TYPE IV (CODING IN FICTIONS LANGUAGE)

In some cases of coding-decoding, fictions language is used to code some words. In such questions, the codes for a group of words is given. In such types of problems, codes for each word can be found by eliminating the common words.

Example: In a certain code language 'over and above' is written as 'da pa ta' and 'old and beautiful' is written as 'Sa na pa'. How is 'over' written in that code language?

Explanation: Over (and) above = da (Pa) ta

Old (and) beautiful = Sa na (Pa)

Clearly, 'and' is common in both and a common code is 'Pa'.

∴   Code for 'and' must be 'Pa'.

Code for 'over' = 'da' or 'ta'.

Code for above = 'da' or 'ta'.

Code for old = 'Sa' or 'n'

Code for beautiful = 'Sa' or 'na'

∴ We can't certainly say what will be exact code for 'over'. But it is sure that code for 'over' must be either 'da' or 'ta'.

TYPE V (CODING BASED ON NUMBERS)

Pattern 1: When numerical values are given to words.

Example: If in a certain language A is coded as 1, B is coded as 2. C is coded as 3 and so on, then find the code for AEECD.

Explanation: As given the letters are coded as below:

A	B	C	D	E	F	G	H	I
1	2	3	4	5	6	7	8	9

Now,
A	E	E	C	D
1	5	5	3	4

∴   Code for AEECD = 15534

Pattern 2: When alphabetical code value are given for numbers.

Example: In a certain code 3 is coded as 'R', 4 is coded as 'D', 5 is coded as 'N', 6 is coded as 'P', then find the code for '53446'.

Explanation: As per the given condition

3	4	5	6
R	D	N	P

Now,
5	3	4	4	6
N	R	D	D	P

∴ Code for 53446 = NRDDP.

TYPE VI (MATHEMATICAL OPERATIONS WITH THE POSITION NUMBERS OF LETTERS)

Example: In a certain code, if 'TALE' is written as 38, then how will you code 'CAME' using the same coding scheme?

Explanation : Look at the numbered alphabet and write down the number corresponding to the letters of the word 'TALE'.

    T   A   L   E
    20   1   12   5

The fact that the code for 'TALE' is 38, gives you a clue that the code is probably obtained by performing an arithmatical operations of the numbers of each other. Let us see :

    20 + 1 + 12 + 5 = 38

Thus, the code for 'CAME' is

    C   A   M   E
    3 + 1 + 13 + 5 = 22

∴   Code for 'CAME' = 22

EXERCISE

1. In a certain code language BEAM is written as 5 % * K and COME is written as $ 7 K %. How is BOMB written in that code?
   (a) 5 % K5   (b) 5 7 K5
   (c) $ 7 K $ (d) 5$ % 5
2. In a certain code PATHOLOGIST is written as PIUBQKSRHFN. How is CONTROVERSY written in that code?
   (a) SUOPDNXRQDU   (b) SUOPDNZTSFW
   (c) QSMNBPXRQDU   (d) QSMNBPZTSFW

DIRECTIONS (Qs.3-5): *In a certain code language meanings of some words are as follows:*

   (i)   'pit na sa' mean 'you are welcome'.
   (ii) 'na ho pa la' means 'they are very good'.
   (iii) 'ka da la' means 'who is good'?
   (iv) 'od ho pit la' means 'they welcome good people'.
3. Which of the following means 'people' in that code language?

   (a) ho   (b) pit
   (c) la   (d) od
4. Which of the following means 'very' in that code language?
   (a) na   (b) da
   (c) pa   (d) Data inadequate
5. Which of the following statements is/are redundant to answer the above two questions?
   (a) None   (b) (i) and (iii)
   (c) (ii) or (iv)   (d) None of these
6. In a certain code language NATIONALISM is written as OINTANMSAIL. How is DEPARTMENTS written in that code?
   (a) RADEPTSTMNE   (b) RADPETSTMNE
   (c) RADPESTMTNE   (d) RADPETSTNME
7. In a certain code language OUTCOME is written as OQWWEQOE. How is REFRACT written in that code?
   (a) RTGITCET   (b) RTGTICET
   (c) RTGITECT   (c) RTGICTET

8. If B is coded as 8, F is coded as 6, Q is coded as 4, D is coded as 7, T is coded as 2, M is coded as 3, and K is coded as 5, then what is the coded form of QKTBFM?
   (a) 452683   (b) 472683
   (c) 452783   (d) None of these

9. If in a certain code language 'pen pencil' is written as '$ £', 'eraser sharpener' is written as @ #', and 'pencil eraser' is written as '$ @', then what is the code for 'pen'?
   (a) £   (b) @   (c) $ (d) #

10. In a certain code language BORN is written as APQON and LACK is written as KBBLK. How will the word GRID be written in that code language?
    (a) FQHCD   (b) FSHED
    (c) HSJED   (d) FSHCD

11. If 'green' is called `white', `white' is called `yellow , 'yellow' is called `red', `red' is called `orange', then which of the following represents the colour of sunflower?
    (a) red   (b) yellow
    (c) brown   (d) indigo

12. In a certain code CHAIR is written as # * • ÷ % and HIDE is written as * ÷ + $. How is DEAR written in that code?
    (a) $ + • % 2   (b) + $ ÷ %
    (c) $ + % ÷ 4   (d) None of these

13. In a certain code AROMATIC is written as BQPLBSJB. How is BRAIN written in that code?
    (a) CQBJO   (b) CSBJO
    (c) CQBHO   (d) CSBHO

14. If 'yellow' means 'green', 'green' means 'white', white means 'red', 'red' means 'black', 'black' means 'blue' and 'blue' means 'violet', which of the following represents the colour of human blood?
    (a) black   (b) violet
    (c) red   (d) None of these

15. In a certain code 'FEAR' is written as ' + × ÷ * ' and 'READ' is written as '* × ÷ $ '. How is 'FADE' written in that code?
    (a) + ÷ $ ×   (b) × ÷ + $
    (c) $ ÷ + *   (d) ÷ $ + ×

16. In a certain code BREAK is written as ASDBJ. How is SOLAR written in that code?
    (a) RPKBS   (b) TPMBS
    (c) RPKBQ   (d) TPKBQ

17. In a certain code language EMPHASIS is written as NDIOBRJR. How will CREATURE be written in that code language?
    (a) SBBDUTSD   (b) QBBDTUSD
    (c) DSDBSTSF   (d) SBDBUTDS

18. In a certain code language 'allow children to play on the ground' is written as 'play allow on children the to ground' then how will 'the do open not electric touch wires' be **decoded** from that language?
    (a) not the electric do touch open wries
    (b) do not touch the electric open wires
    (c) do not touch the open electric wires
    (d) not the do electric touch open wires

19. In a certain code OVER is written as 'PWFSQ' and BARE is written as 'CBSFD'. How is OPEN written in that code? (a) PQFOM   (b) NODMO
    (c) PQFOO   (d) POFMM

20. If 'white' is called 'rain', 'rain' is called 'green', 'green' is called blue', 'blue', is called 'cloud', 'cloud' is called 'red', 'red' is called 'sky', 'sky' is called 'yellow' and 'yellow' is called' 'black', what is the colour of 'blood'?
    (a) Red   (b) Blue
    (c) Cloud   (d) Sky

21. In a certain code language 'POETRY' is written as 'QONDSQX' and 'OVER' is written as 'PNUDQ'. How is 'MORE' written in that code?
    (a) NNNQD   (b) NLPQD
    (c) NLNQD   (d) LNNQD

22. If water is called air, air is called green, green is called brown, brown is called steel, steel is called red, red is called rain, rain is called tree and tree is called road, what is the colour of human blood?
    (a) Red   (b) Water
    (c) Rain   (d) Tree

23. In a certain code language 'MOTHERS' is written as 'OMVGGPU'. How is 'BROUGHT' written in that code?
    (a) CPRTIEV   (b) DPQSIFV
    (c) DPRTIDV   (d) DPQTIFV

24. In a certain code 'PENCIL' is written as 'RCTAMJ' then in that code 'BROKEN' is written as
    (a) SPFLIM   (b) SVFLIN
    (c) FVSMGL   (d) None of these

25. In a certain code language the word FUTILE is written as HYVMNI. How will the word PENCIL be written in that language?
    (a) OIFRLT   (b) OIFRLS
    (c) OLFRIT   (d) None of these

26. In a certain code language the word 'NUMBER' is written as 'UMHTEL'. How will the word 'SECOND' be written in that language?
    (a) CTQDRB   (b) GRQDRB
    (c) CTQFRB   (d) GRQFRB

27. In a certain code 'SENSITIVE' is written as 'QHLVGWGYC'. How is 'MICROSOFT' written in that code?
    (a) KGAPMQMDT   (b) QKETQUQHV
    (c) KLAUMVMIR   (d) LKBTNUNHS

28. If CIGARETTE is coded as GlCERAETT, then DIRECTION will be coded as :
    (a) IRDCTIONE   (b) NOIETCRID
    (c) RIDTCENOI   (d) NORTECDII

29. In a code, CORNER is written as GSVRIV. How can CENTRAL be written in that code?
    (a) DFOUSBM   (b) GIRXVEP
    (c) GJRYVEP   (d) GNFJKER

30. If FRIEND is coded as HUMJTK, how is CANDLE written in that code?
    (a) EDRIRL   (b) DCQHQK
    (c) ESJFME   (d) FYOBOC

31. In a certain code '289' means 'Read from newspaper', '276' means 'tea from field' and '85' means 'Wall newspaper'.

Which of the following number is used for 'tea'?
(a) 2   (b) 6
(c) Either 7 or 6   (d) Either 2 or 6

32. If 'black' means 'white', 'white' means 'red', 'red' means 'yellow', 'yellow' means 'blue', 'blue' means 'green', 'green' means 'purple' and 'purple' means 'orange' then what is the colour of clean sky?
(a) green   (b) purple   (c) blue   (d) yellow

33. If ROSE is coded as 6821, CHAIR is coded as 73456 and PREACH is coded as 961473, what will be the code for SEARCH?
(a) 318826   (b) 214673
(c) 214763   (d) 216473

34. If MOBILITY is coded as 46293927, then EXAMINATION is coded as
(a) 45038401854   (b) 56149512965
(c) 57159413955   (d) 67250623076

35. In a certain code, COMPUTER is written as RFUVQNPC. How is MEDICINE written in the same code?
(a) EOJDJEFM   (b) EOJDEJFM
(c) MFEJDJOE   (d) MFEDJJOE

36. In certain code, SIKKIM in written as THLJJL. How is a TRAINING written in that code?
(a) SQBHOHOH   (b) UQBHOHOF
(c) UQBJOHHO   (d) UQBJOHOH

37. In a certain code language, '3a, 2b, 7c' means 'Truth is Eternal'; '7c, 9a, 8b, 3a' means 'Enmity is not Eternal' and '9a, 4d, 2d, 8b' means 'Truth does not perish'. Which of the following means 'Enmity' in that language?
(a) 3a   (b) 7c
(c) 8b   (d) 9a

38. If DELHI is coded as 73541 and CALCUTTA as 82589662, how can CALICUT be coded?
(a) 5279431   (b) 5978213
(c) 8251896   (d) 8543691

39. If REASON is coded as 5 and BELIEVED as 7, what is the code number for GOVERNMENT?
(a) 6   (b) 8
(c) 9   (d) 10

40. If CONTRIBUTE is written as ETBUIRNTOC, which letter will be in the sixth place when counted from the left if POPULARISE is written in that code?
(a) L   (b) A
(c) I   (d) R

41. In a certain code language the word 'DISPLAY' is written as 'BLQSJDW'. How will the word 'PROJECT' be written in that language?
(a) NUMMCER   (b) NUNMCFR
(c) NTNMCFR   (d) None of these

42. If DANCE is coded as GXQZH then how will RIGHT be coded ?
(a) UFJEW   (b) SGKFX
(c) UFJWE   (d) UFWJE

43. If CAT is coded as 3120, what code number can be given to NAVIN.

(a) 14 1 22 9 14   (b) 4 9 27 4 6 54
(c) 7 3 95 7 6 14   (d) None of these

44. If SPARK is coded as TQBSL what will be code for FLAME
(a) GMBNF   (b) GNBNF
(c) GMCND   (d) GMBMF

45. If SEVEN is coded as 23136 and EIGHT as 34579. What will be the code for NINE ?
(a) 6463 (b)   6364
(c) 6346 (d)   6436

46. If A = 1, PAT = 37 then TAP = ?
(a) 73   (b) 37
(c) 36   (d) 38

47. In a coded language, MANAGER is written as REGANAM. How will ASSISTANT be written in that code ?
(a) TNATSISSA   (b) TNATISSSA
(c) TNATSSIA   (d) TNATSISAS

48. If NAME is coded as MZLD, how will CLAIM be coded?
(a) BKZII   (b) BKYHL
(c) BKZHL   (d) BKZHI

49. In a certain code language, "BOOK" is written as "CQRO". How is "ROAD" written in that code language?
(a) SQDH   (b) SQCH
(c) SRDH   (d) SREH

50. In a certain code language, "HELLO" is written as "97151620" and "WORLD" is written as "241721169". How is "FRUIT" written in that code language?
(a) 720241325   (b) 720231325
(c) 720241324   (d) 719231325

51. In a certain code language, 'WINDOW' is written as 'TLAKFT'. What is the code for 'BLADES' in that code language?
(a) QCBYJZ   (b) PBBXIY
(c) PBAXIY   (d) QBBYJZ

52. In a coded language, MANAGER is written as REGANAM. How will ASSISTANT be written in that code?
[SSC Multitasking-2014]
(a) TNATSISSA   (b) TNATISSSA
(c) TNATSSIA   (d) TNATSISAS

53. If NAME is coded as MZLD, how will CLAIM be coded?
[SSC Multitasking-2016]
(a) BKZII   (b) BKYHL
(c) BKZHL   (d) BKZHI

54. In a certain code language, "BOOK" is written as "CQRO". How is "ROAD" written in that code language?
[SSC Multitasking-2017]
(a) SQDH   (b) SQCH
(c) SRDH   (d) SREH

55. In a certain code language, "HELLO" is written as "97151620" and "WORLD" is written as "241721169". How is "FRUIT" written in that code language?
[SSC Multitasking-2017]
(a) 720241325   (b) 720231325
(c) 720241324   (d) 719231325

56. In a certain code language, 'WINDOW' is written as 'TLAKFT'. What is the code for 'BLADES' in that code language? **[SSC Multitasking-2018]**
    (a) QCBYJZ   (b) PBBXIY
    (c) PBAXIY   (d) QBBYJZ

57. In a certain code language, 'ROAM' is written as '44', 'HIMP' is written as '43'. What is the code for 'BONE' in that code language? **[SSC Multitasking-2018]**
    (a) 33   (b) 34
    (c) 39   (d) 36

58. In a certain code language, 'PENCIL' is written as 'RIPGKP'. What is the code for 'FABRIC' in that code language?
    [SSC Multitasking-2018]
    (a) HFDVKG   (b) HEDVKG
    (c) IEFWLH   (d) IFEWLH

59. In a certain code language, 'PAL' is written as '29', 'CAR' is written as '22'. What is the code for 'ZON' in that code language? **[SSC Multitasking-2018]**
    (a) 43   (b) 45
    (c) 55   (d) 51

60. In a certain code language, 'RIGIDS' is written as 'TFIFFP'. What will be the code for 'CORNET' in the code language?
    [SSC Multitasking-2019]
    (a) GNVMIS   (b) FMULHR
    (c) ELTKRQ   (d) ELTKGQ

61. In a certain code language, 'ROK' is as '44' and 'MIG' is written as '29'. What will be the code for 'TAL' in that code language? **[SSC Multitasking-2019]**
    (a) 33   (b) 34
    (c) 41   (d) 43

62. In a certain code language, 'PING', is written as '4' and 'METAL' is as '5'. What will be the code for 'STEADYS' in that code language? **[SSC Multitasking-2019]**
    (a) 8   (b) 7
    (c) 5   (d) 6

63. In a certain code language, 'GROUND' is written as 'BMJPIY'. What will be the code for 'FREAK' in that code language? **[SSC Multitasking-2019]**
    (a) BOAYH   (b) AMYVF
    (c) BNAWG   (d) AMZVF

64. If MOTHER is coded as QDGSNL, then how would SHEATH be coded? **[SSC Multitasking-2020]**

    (a) IUBFIT   (b) GSZDGR
    (c) RGDGSZ   (d) RZSGDG

65. If FRIEND is coded as 86 and SICK is coded as 62, then how would FRECKLE be coded?
    [SSC Multitasking-2020]
    (a) 108   (b) 87
    (c) 90   (d) 95

66. If MARKET is coded as 15 and SUBMARINE is coded as 21, then how would CONVENTIONAL be coded?
    [SSC Multitasking-2020]
    (a) 23   (b) 27
    (c) 24   (d) 31

67. If PEDAGOGUE is coded as DEPNFZEUG, then how would HAMSTRING be coded?

    [SSC Multitasking-2020]
    (a) SMAHTGNIR   (b) ASRNGITMH
    (c) MAHQSRGNI   (d) MAHSUTGNI

68. In a certain code language, 'TYR' is coded as '65', and 'GAP' is coded as '26'. How will 'MOJ' be coded in that language? **[SSC Multitasking-2021]**
    (a) 40   (b) 41
    (c) 38   (d) 39

69. In a certain code language, 'Floors white marble' is written as 'tp aj pr', 'Tyre are hard white' is written as 'pr qs tr ak' and 'Marble are shiny' is written as 'tp tr 6'. What is the code for 'Shiny floors' in that code language?
    [SSC Multitasking-2021]
    (a) tr aj   (b) 6 ak
    (c) aj 6   (d) 6 pr

70. In a certain code language, 'CYLINDER' is written as 'CYLJNDFR', 'CERTAIN' is written as 'CFRTBJN', and 'PURPOSE' is written as 'PVRPPSF'. How will 'QUEUEING' be written in that language?
    [SSC Multitasking-2021]
    (a) QFVFVJNG   (b) QVFVEJNG
    (c) RVFVEJNG   (d) QVFVFJNG

71. In a certain code language, '587' is written as 'see good pictures', '539' is written as 'good and beautiful', and '967' is written as 'pictures are beautiful'. What is the code for the word 'see' in that language?
    [SSC Multitasking-2021]
    (a) 8   (b) 7
    (c) 6   (d) 5

Hints & Explanations

1. (b) Here, B $\Rightarrow$ 5, E $\Rightarrow$ %, A $\Rightarrow$ *,

   M $\Rightarrow$ K, C $\Rightarrow$ \$, O $\Rightarrow$ 7

   Therefore, BOMB $\Rightarrow$ 57K5

2. (a)

P A T H O   L   O G I S T

P I U B Q   K   S R H F N
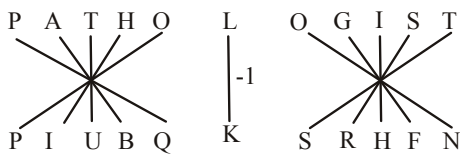
   Five letters of the word PATHOLOGIST are reversed first and then coded as one place forward. Similarly, the last five letters of the word are reversed then coded as one place backward. Middle letter is coded as one place backward.

   Hence, CONTROVERSY will be written as SUOPDNXRQDU.

Sol. 3-7 *pit na sa* $\Rightarrow$ you are welcome …(i)

   na ho pa la $\Rightarrow$ they are very good …(ii)

   ka da la $\Rightarrow$ who is good …(iii)

   od ho pit la $\Rightarrow$ they welcome good people …(iv)

   Code for

   (a) 'good' is *la* [from (ii) and (iv)].

   (b) 'they' is *ho* [from (ii), (iv) and (a)].

   (c) 'welcome' is *pit* [from (i) and (iv)].

   (d) 'people' is *od* [by elimination in (iv)].

   (e) 'are' is *na* [from (i) and (ii)].

   (f) 'very' is *pa* [by elimination in (ii)].

3. (d)   4. (c)

5. (d) Only iii is redundant

6. (b) Divide the word into two groups of five letters each. The first five letters are in group I and the last five letters are in group II. Now, for its coding the middle letters remain unchanged. While the letters in each group change their position as $1 \rightarrow 3, 2 \rightarrow 5, 3 \rightarrow 4, 4 \rightarrow 2$ and $5 \rightarrow 1$.

7. (a) The first letter is coded as two letters: the first remains unchanged and the second two letters forward as in English alphabet. The second, fourth, fifth and sixth letters are coded as two letters forward while the third letter is coded as three letters forward as in English alphabet. The last letter remains unchanged.

8. (d) Q K T B F M = 4 5 2 8 6 3

9. (a) Pen pencil = \$£ …(i)

   Eraser sharpner = @# …(ii)

   Pencil eraser = \$@ …(iii)

   From (i) and (iii), the code for 'pencil' is \$.

   Hence, from (i), the code for 'pen' is £.

10. (b)

B	O	R	N
−1	+1	−1	+1
A	P	Q	O	N

    L A C K

    −1 +1 −1 +1

    K B B L K

    Similarly,

    G R I D

    −1 +1 −1 +1

    F S H E D

11. (a) The colour of sunflower is yellow and yellow is called 'red'. Hence sunflower is red.

12. (d)

Letter:	#	*	•	÷	%	+	$
Code:	C	H	A	I	R	D	E

    Therefore, code for DEAR = + \$ • %

13. (c)

    A R O M A T I C

    +1 −1 +1 −I +1 −1 +1 −1

    B Q P L B S J B

    Similarly,   B R A I N

    +1 −1 +1 −1 +1

    C Q B H O

14. (d) The colour of human blood is red. Here *white* means *red*. Therefore *white* is our answer.

    Do not opt for *black* because *red* means *black* implies that black is called red.

15. (a) It is clear that F $\rightarrow$ +, A $\rightarrow$ ÷, D $\rightarrow$ \$ and E $\rightarrow$ ×

    ∴   FADE $\rightarrow$ + ÷ \$ ×

16. (c) The odd-positioned letters are coded as one position backward and the even-positioned letters are coded as one position forward as in English alphabet.

17. (a)
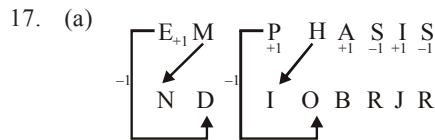
18. (c) Play allow on children the ground : children. The ground Similarly, the do open not electric touch wires : do not touch the open electric wires.

19. (a) O V E R   O P E N

    + 1 + 1 + 1 + 1 − 1 Similarly, + 1 + 1 + 1 + 1− 1

    P W F S Q   P Q F O M

20. **(d)** We know colour of blood is red. Here, *red* is called *sky*. Therefore, our correct answer is '*sky*'.

21. **(c)**

$$\begin{array}{ccccccc} P & O & E & T & R & Y \\ \times & -1 & -1 & -1 & -1 & -1 & -1 \\ Q & O & N & D & S & Q & X \end{array}$$

Similarly,

$$\begin{array}{ccccc} O & V & E & R \\ \times & -1 & -1 & -1 & -1 \\ P & N & U & D & Q \end{array}$$

Similarly, MORE will be coded as follows:

$$\begin{array}{ccccc} M & O & R & E \\ \times & -1 & -1 & -1 & -1 \\ N & L & N & Q & D \end{array}$$

22. **(d)** The colour of human blood is red. But here red is called rain.

23. **(d)**

$$\begin{array}{ccccccc} M & O & T & H & E & R & S \\ +2\downarrow & -2\downarrow & +2\downarrow & -1\downarrow & +2\downarrow & -2\downarrow & +2\downarrow \\ O & M & V & G & G & P & U \end{array}$$

Similarly, BROUGHT be coded as follows:

$$\begin{array}{ccccccc} B & R & O & U & G & H & T \\ +2\downarrow & -2\downarrow & +2\downarrow & -1\downarrow & +2\downarrow & -2\downarrow & +2\downarrow \\ D & P & Q & T & I & F & V \end{array}$$

24. **(d)** The first three letters of the word are reversed. Thus PENCIL becomes NEPCIL. Now add 4 to odd-positioned letters and subtract 2 from even-positioned ones. Similarly, BROKEN becomes ORBKEN. Then we do the calculations: O + 4, R – 2, B + 4, K – 2, E + 4, N – 2, *i.e.* SPFIIL.

25. **(d)** Odd-placed letters are coded as two places forward and even-placed letters are coded as four places forward as in English alphabet.

26. **(b)** A real tough one! If we number the letters of the word from 1 to 6, first rearrange the letters in the order 615243. Next, to this reversed order of letters, apply the following alternately: move three letters ahead; go one letter backward.

Thus NUMBER first becomes RNEUBM. Then

R + 3 = U, N – 1 = M,

E + 3 = H, U – 1 = T, B + 3 = E, M – 1 = L. So the final code is UMHTEL.

Similarly, SECOND → DSNEOC → GRQDRB

27. **(c)** The letters at odd-numbered positions (1st, 3rd, ...) move two letters backward. While those at even numbered positions (2nd, 4th, ...) move three letters forward.

28. **(c)** CIG → GIC , ARE → ERA, TTE → ETT

⇒ DIR ECT ION → RIDTCENOI

29. **(b)** Each letter of the word is moved four steps forward to obtain the code.

30. **(a)** The first, second, third, fourth, fifth and sixth letters of the word are respectively moved two, three, four , five, six and seven steps forward to obtain the corresponding letters of the code.

31. **(c)** '289' means 'Read from newspaper '..........(i)

'276' means 'tea from field' ....(ii)

On comparing (i) and (ii), 2 is used for, 'from'

∴ From (ii) for tea the number is either 6 or 7.

32. **(a)** The colour of clean sky is blue and blue means green. Hence, the colour of clean sky is green.

33. **(b)** The alphabets are coded as shown:

R	O	S	E	C	H	A	I	P
6	8	2	1	7	3	4	5	9

So, in SEARCH, S is coded as 2, E as 1, A as 4 , R as 6, C as 7, H as 3. Thus, the code for SEARCH is 214673.

34. **(b)** Let A = 1, B = 2, C = 3, ..., X = 24, Y = 25, Z = 26.

Then, M = 13 = 1 + 3 = 4; O = 15 = 1 + 5 = 6

L = 12 = 1 + 2 = 3; T = 20 = 2 + 0 = 2;

Y = 25 = 2 + 5 = 7.

So, MOBILITY = 46293927.

Similarly, EXAMINATION = 56149512965

35. **(a)** The letters of the word are written in a reverse order and each letter, except the first and the last one, is moved one step forward, to obtain the code.

36. **(b)** First, third and fifth letters are moved one step forward and second, fourth and sixth letters are moved one step backward to obtain the corresponding letters of the code.

37. **(c)** In the second and third statements, the common code is '9a' and the common word is 'not'. So, '9a' means 'not'. In the first and second statements, the common codes are '7c' and '3a' and the common words are 'is' and 'Eternal''. So, in the second statement, '8b' means 'Enmity'.

38. **(c)** The alphabets are coded as follows:

D	E	L	H	I	C	A	U	T
7	3	5	4	1	8	2	9	6

So, in CALICUT, C is coded as 8, A as 2, L as 5, I as 1, U as 9 and T as 6. Thus, the code for CALICUT is 8251896.

39. **(c)** Code for the given word = (Number of letters in the word) –1.

So, code for GOVERNMENT = 10 – 1 = 9.

40. **(a)** The letters of the word are written in a reverse order and then the third and fourth letters from the begining and the end of the word so formed are reversed in

order, to obtain the code. Thus, the code for POPULARISE is ESRIALPUOP.

41. (d) The odd-number positioned letters move two letters backward and the even number positioned ones move three letters forward. Thus PROJECT will become NUMMCFR.

42. (a) D A N C E ⟶ G X Q Z H

+3
− 3
+3
− 3
+3

Similarly

R I G H T ⟶ U F J F W

43. (a) C A T   Similarly ⟶ N A V I N ⟶ 14 1 22 9 14

3 1 20

14 1 22

9 14

44. (b) S P A R K ⟶ T Q B S L

+1
+1
+1
+1
+1
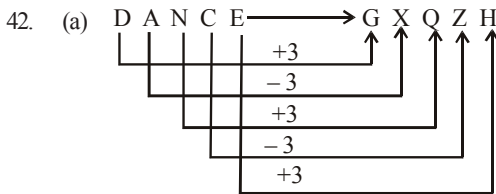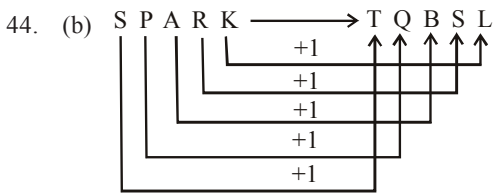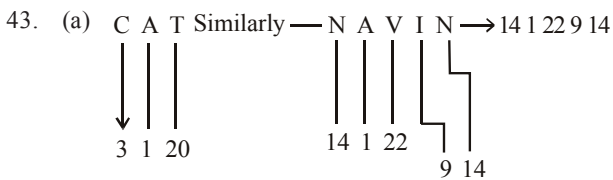
Similarly, FLAME ⟶ GMBNF

45. (a) S E V E N ⟶ 2 3 1 3 6

E I G H T ⟶ 3 4 5 7 9

Hence

N I N E ⟶ 6 4 6 3

46. (b) A = 1
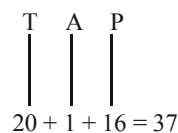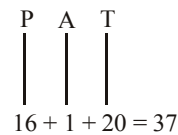
P A T

16 + 1 + 20 = 37

T A P

20 + 1 + 16 = 37

47. (a) Reverse order

ASSISTANT

Reverse order → TNATSISSA

48. (c) N A M E   M Z L D

−1
−1
−1
−1

C L A I M   B K Z H L

−1
−1
−1
−1
−1

49. (a) B O O K   C Q R O

+1
+2
+3
+4

Similarly,

R O A D   S Q D H

+1
+2
+3
+4

50. (a) H E L L O

(8 + 1) (5 + 2) (12 + 4)   (15 + 5)

(12 + 3)

W O R L D

(23 + 1) (15 + 2) (12 + 4)   (4 + 5)

(18 + 3)

F R U I T

(6 + 1) (18 + 2) (9 + 4)   (20 + 5)

(21 + 3)

51. (c) W I N D O W   T L A K F T

−3
−3
−3
−3
−3
−3

Similarly,

B L A D E S   P B A X I Y

−3
−3
−3
−3
−3
−3
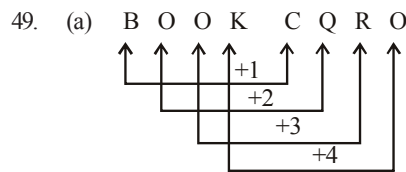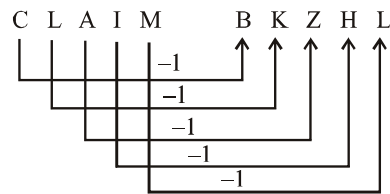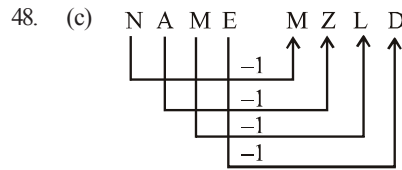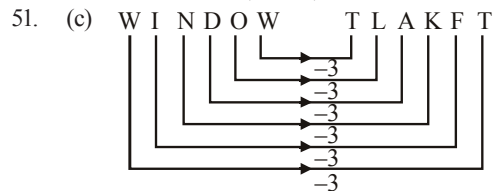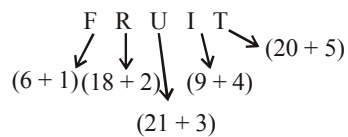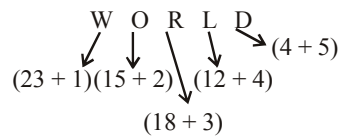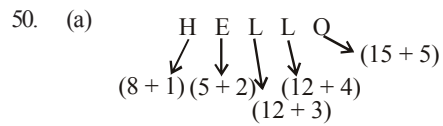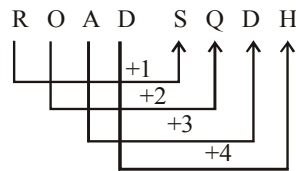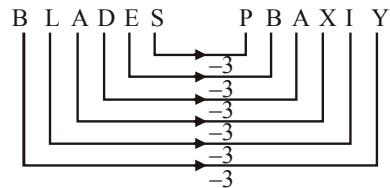
52. (a) Reverse order

ASSISTANT

Reverse order → TNATSISSA

53. (c)

N A M E   M Z L D
(each –1)

C L A I M   B K Z H L
(each –1)

54. (a)

B O O K   C Q R O
+1, +2, +3, +4

Similarly,

R O A D   S Q D H
+1, +2, +3, +4

55. (a)

H E L L O
(8 + 1)(5 + 2)(12 + 4)
(12 + 3)
(15 + 5)

W O R L D
(23 + 1)(15 + 2)(12 + 4)
(18 + 3)
(4 + 5)

F R U I T
(6 + 1)(18 + 2)(9 + 4)
(21 + 3)
(20 + 5)

56. (c)

W I N D O W   T L A K F T
(each –3)

Similarly,

B L A D E S   P B A X I Y
(each –3)

57. (a) Look at the numbered alphabet and write down the no. position corresponding to the letters of the word 'ROAM'

R	O	A	M
18	15	1	13

The fact that the code for the ROAM is 44, gives you a clue that the code is Probably obtained by performing all airthmatical operations of the numbers of each letter.

Let us see

$18 + 15 + 1 + 13 = 47$

Further we have to find the final code which is given in the question is '44'.

To get the final code we have to substract 3 from the addition of the position of the each letter i.e. $47 - 3 = 44$.

Similarly for, HIMP as 43

Thus, the code for 'BONE' is

B   O   N   E
$2 + 15 + 14 + 5 = 36$

So, the final code is $36 - 3 = 33$

58. (b) Here you can see that 1 and 3 letters omitted alternatively in given alphabetic sequence. The following diagram gives you the more clear picture.

P E N C I L
+2↓ +4↓ +2↓ +4↓ +2↓ +4↓
R I P G K P

Clearly
'P' (skip 1 letter) 'R'
'E' (skip 3 letter) 'I'
'N' (skip 1 letter) 'P'
'C, (skip 3 letter) 'G'
"I" (skip 1 letter)"K"
'L' (skip 3 letter) 'P'
Similarly,
FABRIC can be coded. Let us see

F A B R I C
+2↓ +4↓ +2↓ +4↓ +2↓ +4↓
H E D V K G

∴ Code for FABRIC is HEDVKG.

59. (c) The code given for PAL is 29.

This is the sum of the position of the letter in the alphabetic series.

P + A + L = 29

16 + 1 + 12 = 29

Hence for

Z + O + N = 55

26 + 15 + 14 = 55

60. (d) As,

R   I   G   I   D   S

+2 −3 +2 −3 +2 −3

T   F   I   F   F   P

Similarly,

C   O   R   N   E   T

+2 −3 +2 −3 +2 −3

E   L   T   K   G   Q
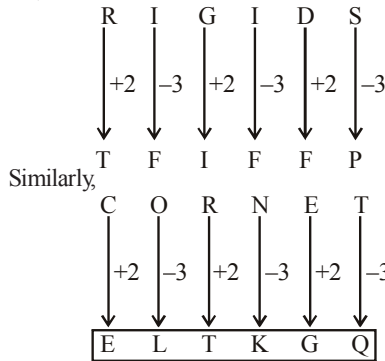
61. (a) As, R   O   K → 18 + 15 + 11 = 44

   (18) (15) (11)

And, M   I   G → 13 + 9 + 7 = 29

   (13) (9) (7)

Similarly, T   A   L → 20 + 1 + 12 = 33

   (20) (1) (12)

62. (b) The coding of to words is as —

Total number of letter in the word is the code of word.

As, P I N G → 4

   M E T A L → 5

Similarly, S T E A D Y S → 7

63. (d) As,

G   R   O   U   N   D

−5 −5 −5 −5 −5 −5

B   M   J   P   I   Y

Similarly,

F   R   E   A   K

−5 −5 −5 −5 −5

A   M   Z   V   F
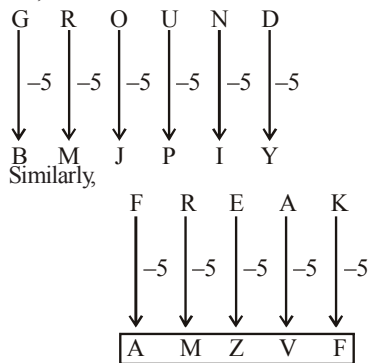
64. (b) As,

M   O   T   H   E   R

−1↓ −1↓ −1↓ −1↓ −1↓ −1↓

L   N   S   G   D   Q

After reversing → Q D G S N L

Similarly,

S   H   E   A   T   H

−1↓ −1↓ −1↓ −1↓ −1↓ −1↓

R   G   D   Z   S   G

After reversing → G S Z D G R

65. (d) FRIEND :

(6 + 18 + 9 + 5 + 14 + 4) + (6 × 5) = 86

SICK :

(19 + 9 + 3 + 11) + (4 × 5) = 62

Similarly,

FRECKLE :

(6 + 18 + 5 + 3 + 11 + 12 + 5) + (7 × 5) = 95

66. (b) MARKET = (No. of Letters in the word) × 2 + 3

= 6 × 2 + 3 = 15

SUBMARINE = 9 × 2 + 3 = 21

Similarly,

CONVENTIONAL = 12 × 2 + 3 = 27

67. (c) As,

P   E   D   A   G   O   G   U   E

                −1 −1 −1

D   E   P   N   F   Z   E   U   G

Similarly,

H   A   M   S   T   R   I   N   G

                 −1 −1 −1

M   A   H   Q   S   R   G   N   I
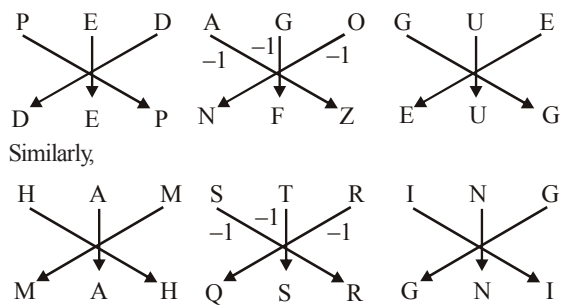
68. (a) T + Y + R = 65 (given)

20 + 25 + 18 = 65 − 2 = 63

G + A + P = 26 (given)

7 + 1 + 16 = 26 − 2 = 24

M + O + J = 13 + 15 + 10

= 38 + 2 = 40

69. (c) Floors white marble = tp aj pr

Tyre are hard white = pr qs tr ak

Marble are shiny = tp tr 6

Marble ⇒ tp

are ⇒ tr

shiny ⇒ 6

white ⇒ Pr

Floors ⇒ aj

Shiny floors ⇒ aj 6

70. (d) C Y L I N D E R

C Y L J N D F R

Vowles are charged with the next alphabet.

Similarly:-

Q U E U E I N G

Q V F V F J N G

71. (a) '5 8 7' = Seed good pictures

'5 3 9' = good and beautiful

'9 6 7' = Pictures are beautiful

good = 5

pictures = 7

see = 8

Option (a) is correct.

5

Blood Relation

Problems based on blood relations are very important segment of analytical reasoning. The question papers of almost every competitive exams of objective type include 4–5 questions based on blood relation. Particularly for getting jobs in banking sectors, one has a good skill of solving such questions. In this chapter, we are giving quicker approach to crack problems based on blood relation.

MEANING OF BLOOD RELATION

Blood relation does mean biological relation. Remember a wife and husband are met biologically related but they are biological parents of their own children. Similarly, brother, sister, paternal grandfather, paternal grandmother maternal grandfather, maternal grandmother, grandson, granddaughter, niece, cousin etc. are our blood relatives.

TYPES OF BLOOD RELATIONS

There are mainly two types of blood relatives:
(i)   Blood relation from paternal side
(ii)   Blood relation from maternal side
Now, we will discuss both kind of relations one-by-one.
(i)   **Blood relation from paternal side :** This type of blood relation can be further subdivided into three types:
(a)   **Past generations of father :** Great grandfather, great grandmother, grandfather, grandmother etc.
(b)   **Parallel generations of father:** Uncles (Brothers of father). aunts (sisters of father) etc.
(c)   **Future generations of father:** Sons, daughters, grandsons, granddaughters etc.
(ii)   **Blood relation from maternal side:** This type of blood relations can also be subdivided into three types:
(a)   **Past generations of mother:** Maternal great grandfather, maternal great grandmother, maternal grandfather, maternal grandmother etc.
(b)   **Parallel generations of mother:** Maternal uncles, maternal aunts etc.
(c)   **Future generations of mother:** Sons, daughters, grandsons, granddaughters etc.
In the examinations, the questions are given in complicated way. In fact complications in the asked question occur because of the given indirect relation. It does mean questions are in the form of indirect relation & one has to convert this indirect relation into direct relation. For example "only son of my father" does mean 'me' (myself). Here in place of 'me' indirect relation has been given in form of "only son of my father". Similarly, "the only daughter of the parents in laws of the husband of Vandana" does mean 'Vandana' herself.

In this example also the sentence "the only daughter of the parents in laws of the husband of 'Vandana' has been given in the form of indirect relation. Below are given some indirect relation in the form of a list. Examinees are required to learn them by heart. If are keeps this list in one's mind, he/she will find it very easy to solve problems based on blood relations.

1.	Son of father or mother	:	Brother
2.	Daughter of father or mother	:	Sister
3.	Brother of father	:	Uncle
4.	Brother of mother	:	Maternal uncle
5.	Sister of father	:	Aunt
6.	Sister of mother	:	Aunt
7.	Father of father	:	Grandfather
8.	Father of father of father	:	Great grand father
9.	Father of grandfather	:	Great grandfather
10.	Mother of father	:	Grandmother
11.	Mother of mother of father	:	Great grandmother
12.	Mother of grandmother	:	Great grandmother
13.	Father of mother	:	Maternal grandfather
14.	Father of father of mother	:	Great maternal grand father
15.	Father of maternal grandfather	:	Great maternal grandfather
16.	Mother of mother	:	Maternal grandmother
17.	Mother of mother of mother	:	Great maternal grandmother
18.	Mother of maternal grandmother	:	Great maternal grandmother
19.	Wife of father	:	Mother
20.	Husband of mother	:	Father

SOME IMPORTANT INFORMATION ABOUT BLOOD RELATION

(1)   General problem of blood relation

Sample Q: Pointing towards a photograph, Mr. Sharma said, "She is the only daughter of mother of my brother's sister." How is Mr. Sharma related to the lady in the photograph?

(a)   Cousin   (b)   Sister
(c)   Aunt   (d)   Daughter in law

Ans. Here we have to find relationship between Mr. Sharma & the lady in the photograph.

Mother of my brother's sister does mean my (Mr. Sharma's) mother. Only daughter of Mr. Sharma's mother does mean "sister of Mr. Sharma". Hence option (b) is the correct answer.

(2) Blood relation based on family tree

Sample Q: Q is the brother of C and C is the sister of Q. R and D are brother and sister. R is the son of A while A & C are wife and husband. How is Q related with D.

Ans. For such type of question a family tree is made in which some symbols are used as below:

'⇔' is used for husband & wife.

'___' is used for brother & sister

'|' is used for parents (father or mother). Parents are put on top while children are put at the bottom.

'–' or minus sign is used for female

'+' or plus sign is used for male.

Now adopting and using the above given symbols we can make a family tree and solve the given problem, let us see the family tree for sample question:

Family + tree :

$$A^+ \longleftarrow C^- \longrightarrow Q^+$$
$$|$$
$$R^+ \longrightarrow D^-$$
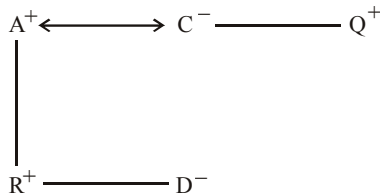
As per the question Q is the brother of c and c is the sister of Q. Hence relation between C & Q has been presented as $(C^- - Q^+)$ where '–' sign above C makes it clear that C is a female and '+' sign above 'Q' makes it clear that Q is a male. Similarly for R and D. The presentation $\left(\overset{+}{R} - D^-\right)$ has been made. Further according to the question.

A and C are having a husband and wife relationship and hence this has been presented as $\left(\overset{+}{A} \Leftrightarrow C^-\right)$. As it is already given that C is the sister of Q and A and C are wife and husband, this becomes clear that A is the male member of the family and this is the reason A has '+' as its gender sign. Lastly, the vertical line gives father and son relationship and has been presented as $\begin{pmatrix} A^+ \\ | \\ R^+ \end{pmatrix}$. Now from this family tree it becomes clear that C is the mother of R and D and as Q is the brother of C, then Q will definitely be the maternal uncle of R & D. Hence we can say that Q is the maternal uncle of D and this is the required answer for our sample question.

EXERCISE

1. Anil, introducing a girl in a party, said, she is the wife of the grandson of my mother. How is Anil related to the girl?
   (a) Father
   (b) Grandfather
   (c) Husband
   (d) Father-in-law

2. A man said to a woman, "Your mother's husband's sister is my aunt." How is the woman related to the man ?
   (a) Granddaughter
   (b) Daughter
   (c) Sister
   (d) Aunt

3. Introducing Rajesh, Neha said, "His brother's father is the only son of my grand father". How Neha is related to Rajesh?
   (a) Sister
   (b) Daughter
   (c) Mother
   (d) Niece

4. Vinod is the brother of Bhaskar. Manohar is the sister of Vinod. Biswal is the brother of Preetam and Preetam is the daughter of Bhaskar. Who is the uncle of Biswal?
   (a) Bhaskar
   (b) Manohar
   (c) Vinod
   (d) Insufficient data

5. A man said to a woman, "Your brother's only sister is my mother." What is the relation of the woman with the maternal grandmother of that man?
   (a) Mother
   (b) Sister
   (c) Niece
   (d) Daughter

6. Pointing to a photograph, a man said, " I have no brother or sister but that man's father is my father's son." Whose photograph was it?
   (a) His own
   (b) His son's
   (c) His father's
   (d) His nephew's

7. Pointing to a photograph, a lady tells Pramod, "I am the only daughter of this lady and her son is your maternal uncle," How is the speaker related to Pramod's father?
   (a) Sister-in-law
   (b) Wife
   (c) Neither (a) nor (b)
   (d) Aunt

8. Introducing a man, a woman said, "His wife is the only daughter of my mother." How is the woman related to that man?
   (a) Aunt
   (b) Wife
   (c) Mother-in-law
   (d) Maternal Aunt

9. Deepak said to Nitin, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife." How is the boy playing football related to Deepak?
   (a) Son
   (b) Brother
   (c) Causin
   (d) Nephew

10. A is the mother of B. C is the father of B and C has 3 children. On the basis of this information, find out which of the following relations is correct :
    (a) C has three daughters.
    (b) C has three sons.
    (c) B is the son.
    (d) None of these.

11. A man pointing to a photograph says, "The lady in the photograph is my nephew's maternal grandmother." How is the lady in the photograph related to the man's sister who has no other sister?
    (a) Cousin   (b) Sister-in-law
    (c) Mother   (d) Mother-in-law

12. A is the brother of B. A is the brother of C. To find what is the relation between B and C. What minimum information from the following is necessary?
    (i) Gender of C   (ii) Gender of B
    (a) Only (i)   (b) Only (ii)
    (c) Either (i) or (ii) (d) both (i) and (ii)

DIRECTIONS (Qs.13-14): *Study the information given below and answer the questions following it:*

Mohan is son of Arun's father's sister. Prakash is son of Reva, who is mother of Vikash and grandmother of Arun. Pranab is father of Neela and grandfather of Mohan. Reva is wife of Pranab.

13. How is Mohan related to Reva?
    (a) Grandson   (b) Son
    (c) Nephew   (d) Data inadaequate

14. How is Vikash's wife related to Neela?
    (a) Sister
    (b) Niece
    (c) Sister-in-law
    (d) Data inadaequate

15. Pointing to a girl, Abhishek said, "She is daughter of the only child of my father." How is Abhishek's wife related to that girl?
    (a) Daughter   (b) Mother
    (c) Aunt   (d) Sister

DIRECTIONS (Qs. 16): *Study the following information and answer the question given below.*

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

16. Which of the following is/are redundant to answer the question?
    $R \times N - Z \times T$
    (a) (ii) only
    (b) (i) only
    (c) (i) and (iv) only
    (d) Either (i) and (iii) or (ii) and (iv)

17. If 'P $ Q' means 'P is brother of Q', 'P # Q' means 'P is mother of Q' and 'P*Q' means 'P is daughter of Q', then who is the father in 'A # B $ C * D ' ?
    (a) D   (b) B
    (c) C   (d) Data inadequate

18. Pointing to a boy, Meena says, "He is the son of my grandfather's only son." How is the boy's mother related to Meena?

    (a) Mother   (b) Aunt
    (c) Sister   (d) Data inadequate

19. Pointing to a lady in the photograph, Shaloo said, "Her son's father is the son-in-law of my mother". How is Shaloo related to the lady?
    (a) Aunt   (b) Sister
    (b) Cousin   (d) Mother

20. Pointing to Kapil, Shilpa said, "His mother's brother is the father of my son Ashish". How is Kapil related to Shilpa's Husband?
    (a) Sister-in-law   (b) Nephew
    (c) Aunt   (d) Niece

21. A man said to lady, "Your mother's husband's sister is my aunt." How is the lady related to the man?
    (a) Daughter   (b) Grand daughter
    (c) Mother   (d) Sister

22. A family has a man, his wife, their four sons and their wives. The family of every son also have 3 sons and one daughter. Find out the total number of male members in the family.
    (a) 4   (b) 8
    (c) 12   (d) 17

23. A is B's sister. C is B's mother. D is C's father. E is D's mother. Then, how is A related to D?
    (a) Grandmother   (b) Grandfather
    (c) Daughter   (d) Granddaughter

24. In a joint family, there are father, mother, 3 married sons and one unmarried daughter. Of the sons, two have 2 daughters each and one has a son. How many females members are there in the family?
    (a) 2   (b) 3
    (c) 6   (d) 9

25. A, B and C are sisters. D is the brother of E and E is the daughter of B. How is A related to D?
    (a) Sister   (b) Cousin
    (c) Niece   (d) Aunt

26. F is the brother of A. C is the daughter of A. K is the sister of F. G is the brother of C. Who is the uncle of G?
    (a) A   (b) C
    (c) F   (d) K

27. P is the brother of Q and R. S is the R's mother. T is P's father. Which of the following statements cannot be definitely true?
    (a) T is Q's father (b) S is P's mother
    (c) T is S's husband (d) S is T's son

28. A boy introduced a girl as the daughter of the son of the father of his uncle. How is the girl related to the boy ?
    [SSC Multitasking-2014]
    (a) Aunt   (b) Grand-daughter
    (c) Niece   (d) Sister

29. P is father of Q, but Q is not his son. S is wife of P. R is son of S. How is Q related to S?   **[SSC Multitasking-2017]**
    (a) Brother   (b) Daughter
    (c) Father   (d) Cannot be determined

Hints & Explanations

1. (d) Clearly, the grandson of Anil's mother is son of Anil and wife of Anil's son is daughter in-law of Anil. Thus, Anil is the father-in-law of the girl.

2. (c) Woman's Mother's husband

 ↓

 Woman's father

 Woman's father's sister ⟶ Woman's Aunt.
 Since, woman's aunt is man's aunt
 ∴ woman is sister of man.
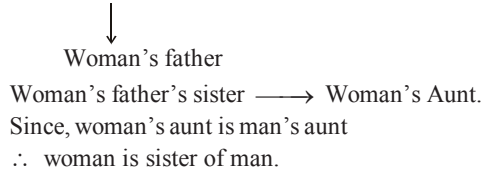
3. (a) Father of Rajesh's brother is the father of Rajesh. Rajesh's father is the only son of Neha's grandfather. Hence, Rajesh's father is Neha's father. So, Neha is the sister of Rajesh.

4. (c)
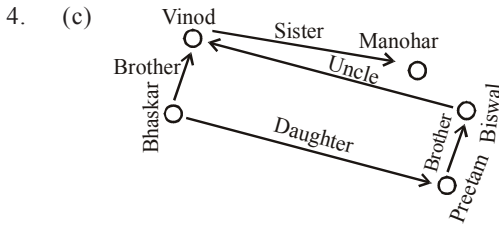
 Thus, Vinod will be uncle of Biswal.

5. (d) The only sister of the brother of the woman will be the woman herself and she is the mother of that man. Thus, the woman is the daughter of the maternal grandmother of that man.

6. (b) Since the narrator has no brother, his father's son is he himself. So, the man who was talking is the father of the man in the photograph, i.e. the man in the photograph is his son.

7. (b) Clearly, the speaker's brother is Pramod's maternal uncle. So, the speaker is Pramod's mother or his father's wife.

8. (b) Clearly, only daughter of her mother is woman herself. So, that woman is the wife of man.

9. (b) Father's wife — Mother; Mother's daughter — Sister; Sister's younger brother — His brother. So, the boy is Deepak's brother.

10. (d)
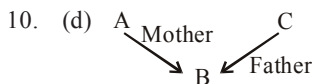
 ∵ C has three children but we can't say that he has three daughters or three sons.
 So, options (a) and (b) are incorrect.
 Also, we don't know that B is a boy or girl.
 So, option (c) is also incorrect.

11. (c) Clearly, the lady is the grandmother of man's sister's son i.e., the mother of the mother of man's sister's

son i.e., the mother of man's sister.
 So, the lady is man's mother.

12. (d) Without knowing the sex of C, we can't be determined whether B is sister of C or B is brother of C. Similarly without knowing the sex of B we can't be determined whether C is sister of B or C is brother of B. Therefore, both (i) and (ii) are necessary.

Sol. (13-14):
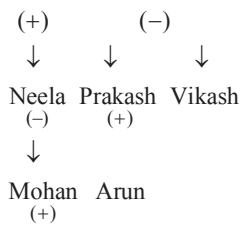
13. (a) 14. (d)

15. (b) Girl is daughter of the only child of Abhishek's father or, Girl is daughter of Abhishek
 Hence, girl is daughter of Abhisek's wife.

16. (b) $R + N − Q × T$ is the required equation to answer the previous question. Here the used symbols are '+', '−' and '×'. Therefore, redundant part of the symbols given in the direction is statement (i).

17. (a) Clearly, B and C are siblings. While A and D are parents. Now, A is the mother., Hence, D must be the father.

18. (a) One's grandfather's only son ⇒ one's father. And the son of one's father ⇒ One's brother or oneself. Hence, the mother of the boy is Meena's mother.

19. (b) Lady's son's father is lady's husband. So, the lady's husband is the son-in-law of Shaloo's mother i.e., the lady is the daughter of Shaloo's mother. Thus, Shaloo is the lady's sister.

20. (b) Father of Shilpa's son → Shilpa's husband. So, Kapil is the son of Shilpa's husband's sister,. Thus Kapil is Shilpa's Husband's Nephew.

21. (d) Lady's mother's husband → Lady's father
 Lady's father's sister → Lady's Aunt.
 So, Lady's aunt is man's aunt and therefore lady is man's sister.

22. (d) The make members in the family are:-
 (i) The man himself
 (ii) his four sons; and
 (iii) his (3 × 4) = 12 grandsons.
 Hence total numbers of male members
 = 1 + 4 + 12 =17

23. (d) A is the sister of B and B is the son/daughter of C. So, A is the daughter of C. Also, D is the father of C. Thus, A is the granddaughter of D.

24. (d) The female members are:-
    (i) mother
    (ii) Wives of 3 married sons
    (iii) unmarried daughter
    (iv) 2 daughter of each of two sons
    $\therefore$ Total No of females
    $= 1 + 3 + 1 + 2 \times 2 = 9$

25. (d) E is the daughter of B & B is the brother of E. So, D is the son of B. Also, A is the sister of B. Thus, A is D's Aunt.

26. (c) G is the brother of C and C is the daughter of A. So, G is son of A. Also, F is the brother of A. So, F is the uncle of G.

27. (d) P, Q, R are children of same parent. So, S, who is R's mother and T, who is P's father will be mother and father of all three. However, it is not mentioned weather Q is male or female. So, (d) cannot be definitely true.

28. (c)
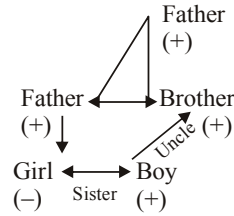
There is no option of cousin sister.

29. (b) P is father of Q, but Q is not his son means Q is daughter of P. S is wife of P, so P and S are couple, so Q is daughter of S.

6

Direction & Distance

This part of reasoning comes under the category of common sense reasoning. In fact this segment gauge the sense of direction of a candidate. In every objective competitive examinations this type of questions are asked. Particularly, in banking job exams, these questions can be seen in every question papers. This is the reason, examinees are required to pay special attention towards such questions.

Concept of Direction

In our day to day life, we make our concept of direction after seeing the position of sun. In fact, this is a truth that sun rises in the East and goes down in the west. Thus when we stand facing sunrise, then our front is called East while our back is called West. At this position our left hand is in the Northward and the right hand is in the Southward. Let us see the following direction map that will make your concept more clear:

Direction Map:
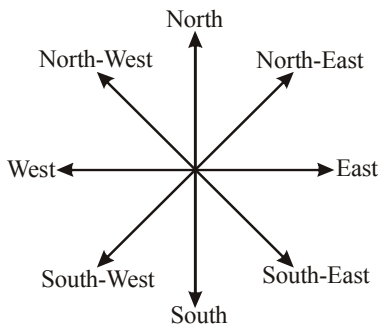
Note:

On paper North is always on top be while South is always in bottom.

Concept of Degree

Let us see the following picture:
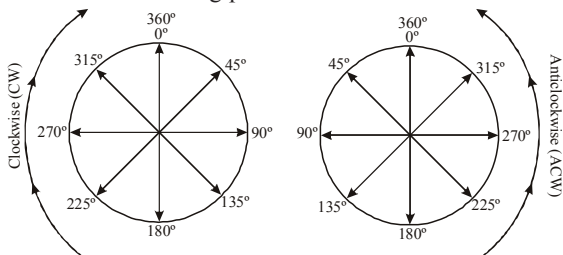
Concept of Turn

Let turn = clockwise turn

Right turn = Anticlockwise turn.

Let us understand it through pictorial representation:
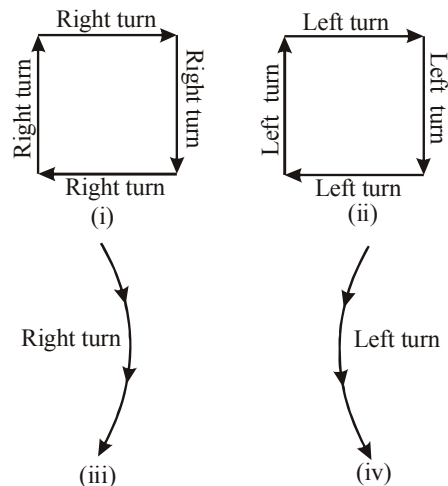
Concept of Minimum Distance

Minimum distance between initial and last point

$h^2 = b^2 + p^2$, where

h = Hypotenuse

b = Base

P = Perpendicular

Remember this important rule is known as '**Pythogoras Theorem**'
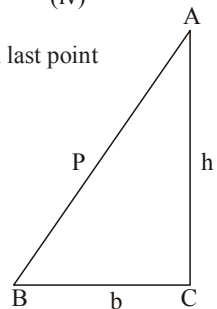
EXAMPLE ✐ **1.** Raman walked 2 km West from his office and then turned South covering 4 km. Finally, he waked 3 km towards East and again move 1 km West. How far is Raman from his initial position.

    (a) 4 km   (b) 8 km

    (c) 10 km   (d) 7 km

Sol. Raman starts from his office A, moves 2 km West upto B, then 4 km to the South upto C, 3 km East upto D and finally 1 km West upto E, Thus his distance from the initial position A = AE = BC = 4 km.

Hence option (a) is the correct answer.
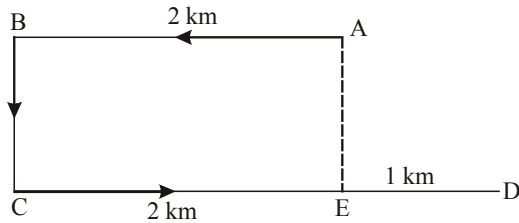
EXAMPLE 2. **Rashmi walks 10 km towards North. She walks 6 km towards South then. From here she moves 3 km towards East. How far and in which direction is she with reference to her starting point?**

    (a) 6 km West   (b) 7 km East

    (c) 8 km North   (d) 5 km North-East.

Sol. It is clear, Rashmi moves from A 10 km Northwards upto B, then moves 6 km Southwards upto C, then turns towards East and walks 3 km upto D.

Then, AC = (AB – BC) = 10 – 6 = 4 km

CD = 3 km.
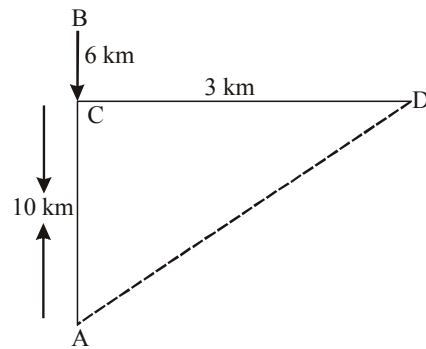
∴ Rashmi's distance from starting point A=AD

$$= \sqrt{AC^2 + CD^2} = \sqrt{4^2 + 3^2} = \sqrt{16+9} = \sqrt{25} = 5\,km.$$

From figure, D is to the North-East of A, Hence (d) is the correct option

EXERCISE

1. Q travels towards East. M travels towards North. S and T travel in opposite directions. T travels towards right of Q. Which of the following is **definitely true**?
   (a) M and S travel in the opposite directions.
   (b) S travels towards West.
   (c) T travels towards North.
   (d) M and S travel in the same direction.

2. P, Q, R, S and T are sitting around a circular table. *R* is to the right of *P* and is second to the left of *S*. *T* is not between *P* and *S*. Who is second to the left of *R*?
   (a) S   (b) T
   (c) Q   (d) Data inadequate

3. Of the five villages P, Q, R, S and T situated close to each other, P is to west of Q, R is to the south of P, T is to the north of Q, and S is to the east of T. Then, R is in which direction with respect to S?
   (a) North-West   (b) South-East
   (c) South-West   (d) Data Inadequate

4. M is to the East of D, F is to the South of D and K is to the West of F. M is in which direction with respect to K?
   (a) South-West   (b) North-West
   (c) North-East   (d) South-East

5. After 4 pm on a sunny day when Ramesh was returning from his school, he saw his uncle coming in the opposite direction. His uncle talked to him for some time. Ramesh saw that the shadow of his uncle was to his right side. Which direction was his uncle facing during their talk?
   (a) North   (b) South
   (c) East   (d) Data inadequate

6. A and B are standing at a distance of 20 km from each other on a straight East-West road. A and B start walking simultaneously, eastwards and westwards respectively, and both cover a distance of 5 km. Then A turns to his left and walks 10 km. 'B' turns to his right and walks 10 km and at the same speed. Then both turn to their left and cover a distance of 5 km at the same speed. What will be the distance between them?
   (a) 10 km   (b) 5 km
   (c) 20 km   (d) 25 km

7. Alok walked 30 metres towards east and took a right turn and walked 40 metres. He again took a right turn and walked 50 metres. Towards which direction is he from his starting point?
   (a) South   (b) West
   (c) South-West   (d) South-East

8. Ruchi's house is to the right of Vani's house at a distance of 20 metres in the same row facing North. Shabana's house is in the North- East direction of Vani's house at a distance of 25 metres. Determine that Ruchi's house is in which direction with respect of Shabana's house.
   (a) North-East   (b) East
   (c) South   (d) West

9. Y is to the East of X, which is to the North of Z. If P is to the South of Z, then P is in which direction with respect to Y?
   (a) North   (b) South
   (c) South-East   (d) None of these

10. One afternoon, Manisha and Madhuri were talking to each other face to face in Bhopal on M.G. Road. If Manisha's shadow was exactly to the left of Madhuri, which direction was Manisha facing?
   (a) North   (b) South
   (c) East   (d) Data inadequate

11. 'X' started walking straight towards South. He walked a distance of 5 metres and then took a left turn and walked a distance of 3 metres. Then he took a right turn and walked a distance of 5 metres again. 'X' is facing which direction now?
    (a) North-East   (b) South
    (c) North   (d) South-West

12. If A is to the south of B and C is to the east of B, in what direction is A with respect to C?
    (a) North-east   (b) North- west
    (c) South-east   (d) South-west

13. One morning after sunrise, Gopal was facing a pole. The shadow of the pole fell exactly to his right. Which direction was he facing?
    (a) South   (b) East
    (c) West   (d) Data inadequate

14. A boy rode his bicycle northwards, then turned left and rode one km and again turned left and rode 2 km. He found himself exactly one km west of his starting point. How far did he ride northwards initially?
    (a) 1 km   (b) 2 km
    (c) 3 km   (d) 5 km

15. Ravi wants to go to the university. He starts from his home which is in the East and come to a crossing. The road to the left ends is a theatre, straight ahead is the hospital. In which direction is the university?
    (a) North   (b) South
    (c) East   (d) West

16. A rat runs 20' towards east and turns to right, runs 10' and turns to right, runs 9' and again turns to left, runs 5' and then to left, runs 12' and finally turns to left and runs 6'. Now, which direction is the rat facing?
    (a) East   (b) West
    (c) North   (d) South

17. If South-east becomes North, North-east becomes West and so on, what will West become?
    (a) North-east   (b) North-west
    (c) South-east   (d) South-west

18. P, Q, R and S are playing a game of carrom. P, R and S, Q are partners. S is to the right of R who is facing west. Then, Q is facing
    (a) North   (b) South
    (c) East   (d) West

19. A and B start walking, from a point, in opposite directions. A covers 3 km and B covers 4 km. Then A turns right and walks 4 km while B turns left and walks 3 km. How far is each from the starting point ?
    (a) 5 km   (b) 4 km
    (c) 10 km   (d) 8 km

20. Anuj started walking positioning his back towards the sun. After sometime, he turned left, then turned right and then towards the left again. In which direction is he going now?

    (a) North or South   (b) East or West
    (c) North or West   (d) South or West

21. From her home, Prerna wishes to go to school. From home, she goes towards North and then turns left and then turns right, and finally she turns left and reaches school. In which direction her school is situated with respect to her home?
    (a) North-East   (b) North-West
    (c) South-East   (d) South-West

22. From his house, Lokesh went 15 km to the North. Then he turned West and covered 10 km. Then, he turned South and covered 5 km. Finally , turning to East, he covered 10 km. In which direction is he from his house?
    (a) East   (b) West
    (c) North   (d) South

23. One evening before sunset two friends Sumit and Mohit were talking to each other face to face. If Mohit's shadow was exactly to his right side, which direction was Sumit facing?
    (a) North   (b) South
    (c) West   (d) Data inadequate

24. Rohit walked 25 metres towards South. Then he turned to his left and walked 20 metres. He then turned to his left and walked 25 metres. He again turned to his right and walked 15 metres. At what distance is he from the starting point and in which direction?
    (a) 35 metres East   (b) 35 metres North
    (c) 40 metres East   (d) 60 metres East

25. One morning after sunrise, Reeta and Kavita were talking to each other face to face at Tilak Square. If Kavita's shadow was exactly to the right to Reeta, which direction Kavita was facing?
    (a) North   (b) South
    (c) East   (d) Data inadequate

26. I am facing east. I turn 100° in the clockwise direction and then 145° in the anticlockwise direction. Which direction am I facing now?
    (a) East   (b) North-east
    (c) North   (d) South-west

27. A man is facing north-west. He turns 90° in the clockwise direction, then 180° in the anticlockwise direction and then another 90° in the same direction. Which direction is he facing now?
    (a) South   (b) South-west
    (c) West   (d) South-east

28. A man is facing west. He runs 45° in the clockwise direction and then another 180° in the same direction and then 270° in the anticlockwise direction. Which direction is he facing now?
    (a) South   (b) North-west
   (c) West   (d) South-west

29. A and B are standing at a distance of 20 km from each-other on a straight East West road. A and B start walking simultaneously East ward and West ward respectively and both cover a distance of 5 km. Then A turns to his left and walk 10 km B turns to his right and walk 10 km at same speed. Then both turn to their left and cover a distance of 5 km at same speed. What will be the distance between them ?
    (a) 10 km   (b) 30 km
    (c) 20 km   (d) 25 km
30. Deepak is standing facing South. She goes 20 metres ahead and turns right and goes 30 metres. Now she turns left and goes for 40 metres and turns right. In which direction is she headed now? **[SSC Multitasking-2014]**

(a) North   (b) South
(c) East   (d) West
31. A man facing south turns to his left and walk 10m, then he turns to his right and walk 15m, again he turns to his left and walk 5m and then he turns to his left and walk 15m. In which direction he is facing now?   **[SSC Multitasking-2016]**
    (a) South   (b) West
    (c) North   (d) East
32. Megha walks 10 km towards North. She turns right and walks 15 km. She turns right and walks 20 km. She turns right and walks 15 km. How far (in km) is she from her starting point?   **[SSC Multitasking-2017]**
    (a) 15   (b) 5
    (c) 10   (d) 20

Hints & Explanations

1. (d) We have been given that Q travels towards East and M travels towards North. Now, T travels towards right of Q implies that T travels towards South. Hence, S travels towards North (because S and T travel in opposite directions). Therefore, it is definitely true that M and S travel in the same direction i.e., North.

2. (c)
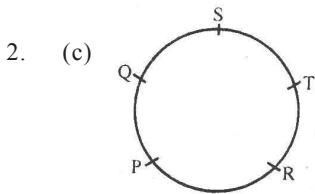
   Q is second to the left of *R*.

3. (c)
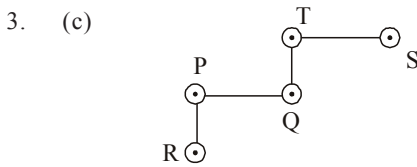
   Hence, R is to the South-West with respect to S.

4. (c)
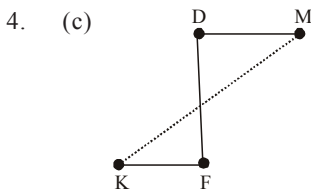
   M is to the North-East of K.
5. (b) After 4 pm the shadow will be towards East. Now, East is to the right of Ramesh. So Ramesh faces North.

And his uncle, who is opposite him, faces South.

6. (a)

7. (c)

8. (c)
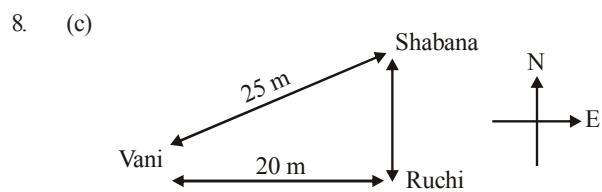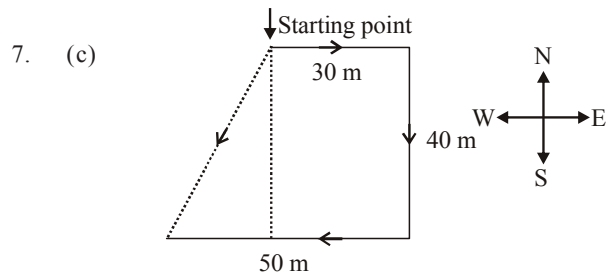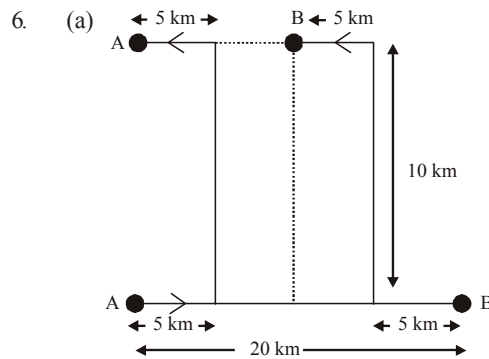
9. (d)
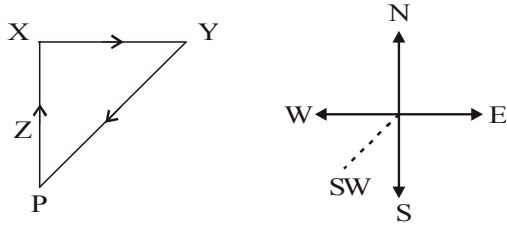
10. (a) In the afternoon the sun is in the west. Hence the shadow is in the east. Now, east is to the left of Madhuri. So, Madhuri is facing south. Therefore, Manisha, who is face to face with Madhuri, is facing north.

11. (b)
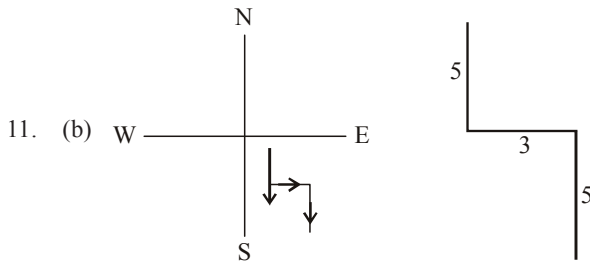
12. (d) Clearly, comparing the direction of A w.r.t. C in the second diagram with that in the first diagram, A will be south-west of C.
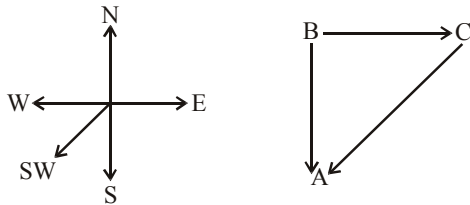
13. (a) The Sun rises in the east. So, in morning, the shadow falls towards the west. Now, shadow of pole falls to the right of Gopal. Therefore, Gopal's right side is the west. So, he is facing South.

14. (b) Clearly, the boy rode from A to B, then to C and finally up to D. Since D lies to the west of A, so required distance = AB = CD = 2 km.
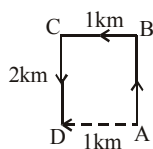
15. (a) Starting from his house in the East, Ravi moves westwards. Then, the theatre, which is to the left, will be in the South. The hospital, which is straight ahead, will be to the West. So, the University will be to the North.
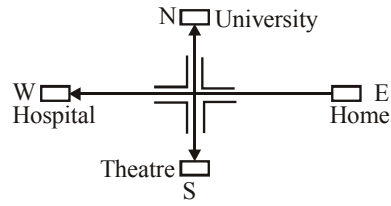
16. (c) The movements of rat are as shown in figure. Clearly, it is finally walking in the direction FG i.e. North.
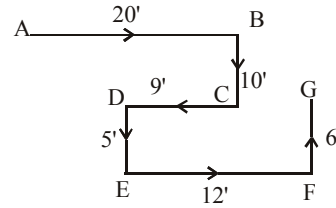
17. (c) Here, each direction moves $90° + 45° = 135°$
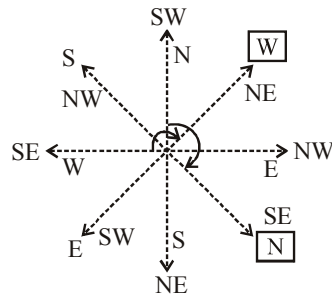
18. (a) Here, R faces towards West. S is to the right of R. So, S is facing towards South. Thus, Q who is the partner of S, will face towards North.
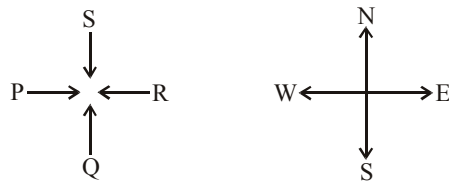
19. (a) Here, O is the starting point.
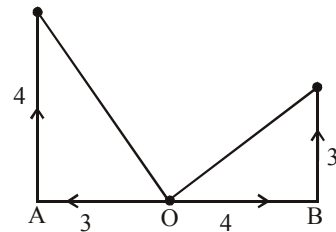
Both A and B are $\sqrt{3^2 + 4^2} = 5$ km from the starting point.

20. (a) Clearly, there are two possible movements of Anuj as shown below:
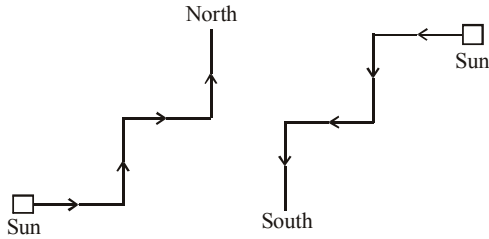

21. (b)
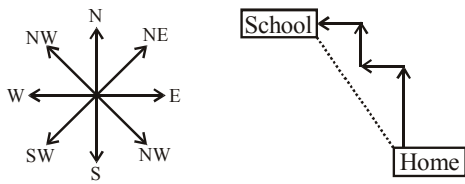
It is clear from the diagram that school is in North-west direction with respect to home.

22. (c) The movements of Lokesh are as shown in figure. (A to B, B to C, C to D to E). Clearly, his final position is E which is to the North of his house A.
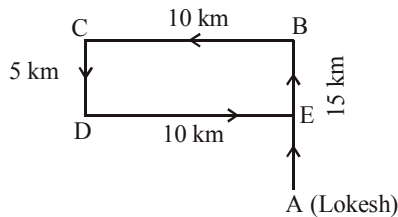

23. (b) In the evening, sun is in the west and so the shadows fall towards east. So, Mohit's shadow fell towards east. Now, since Mohit's shadow fell towards right, therefore, Mohit is facing North. So Sumit, standing face to face with Mohit, was facing South.

24. (a) The movements of Rohit are as shown in figure.

Rohit's distance from starting point A = AE

= (AD + DE) = (BC + DE) = (20 + 15) m = 35 m.

Also, E is to the East of A.
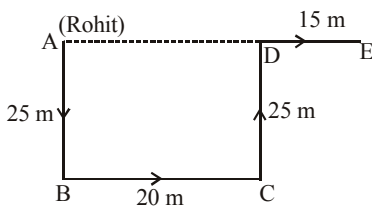
25. (a) In morning, sun rise in the east so shadow of a object falls towards the west. Now, Kavita's shadow falls to the rights of Reeta. Hence, Reeta is facing South and Kavita is facing North.
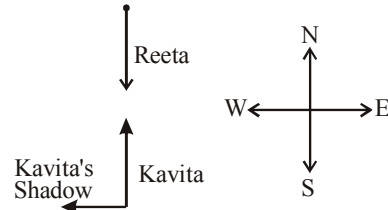
26. (b) As shown in figure, the man initially faces towards east i.e., in the direction OA. On moving 100° clockwise, he faces in the direction OB. On further moving 145° anticlockwise, he facings the direction OC. Clearly, OC makes an angle of (145° – 100°) i.e. 45° with OA and so, the man faces in the direction North-east.
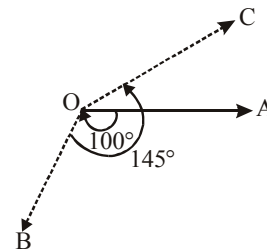

27. (d) As shown in figure, the man initially faces in the direction OP. On moving 90° clockwise, he faces in the direction OX. On further moving 180° anticlockwise, he faces in the direction OY. Finally, on moving 90° anticlockwise, he faces in the direction OZ, which is South-east.
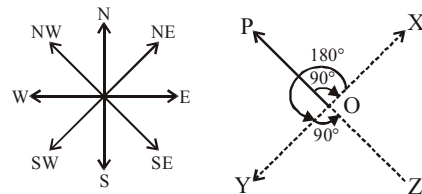
28. (d) Clearly, the man initially faces in the direction OA. On moving 45° clockwise, he faces in the direction OB. On further moving 180° clockwise, he faces in the direction OC. Finally, on moving 270° anticlockwise, he faces in the direction OD, which is South-west.
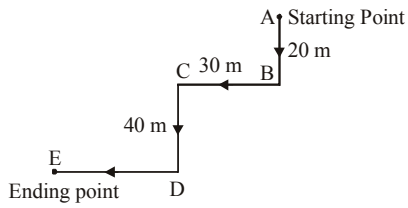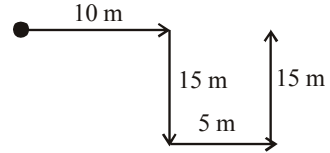
Hence, the answer is (d)
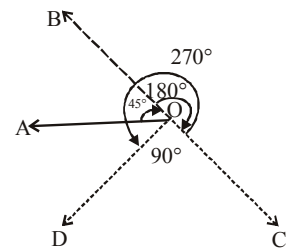
29. (a)

Required distance = 5 + 5 = 10 km
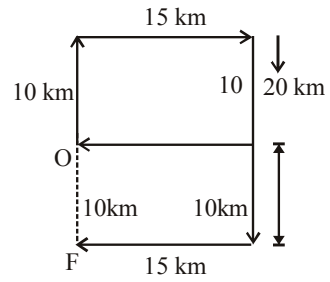
30. (d)

31. (c) He is finally facing in north diretion.

32. (c) Let O be the starting point and F be the final point. So, she is 10 km from starting point.

Time Sequence, Number & Ranking Test

Time Sequence

To solve problems related to time sequence, let us gather 1st the following informations :

1	Minute = 60 seconds
1	Hour = 60 minutes
1	Day = 24 hours
1	Week = 7 days
1	Month = 4 weeks
1	Year = 12 months
1	Ordinary year = 365 days
1	Leap year = 366 days
1	Century = 100 years

Other facts to be remembered

- A day is the period of the earth's revolution on its axis.
- A 'Solar year' is the time taken the earth to travel round the sun. It is equal to 365 days, 5 hours, 48 minutes and

  $47\frac{1}{2}$ seconds nearly.

- A 'Lunar month' is the time taken the moon to travel round the earth. It is equal to nearly 28 days.

Leap Year

- If the number of a given year is divisible by 4, it is a leap year. Hence, the years like 1996, 2008, 2012 are leap years. But years like 1997, 1991, 2005, 2007 are not divisible by 4 and therefore, such years are not leap years.
- In a leap year, February has 29 days.
- A leap year has 52 weeks and 2 days. Therefore, a leap year has 2 odd days.

Ordinary year

- An ordinary year has 12 months.
- An ordinary year has 365 days.
- An ordinary year has 52 weeks and 1 day. Therefore, an ordinary year has 1 odd day.

Century (100 years)

- A century has 76 ordinary years and 24 leap years.
- A century has 5 odd days.

Odd days

Odd days in an ordinary year = 1

Odd days in a leap year = 2

Odd days in 100 years = 5

Odd days in 200 years = (5×2) = 1 week + 3 days = 3

Odd days in 300 years = (5×3) = 2 weeks + 1 day = 1

Odd days in 400 years = $(5 \times 4 + 1)$ = 21 days

$$= 3 \text{ weeks} + 0 \text{ day} = 0$$

Similarly, each 800, 1600, 2000, 2004, etc. has 0 odd days.

EXAMPLE **1**. **Neena returned house after 3 days earlier than the time she had told her mother. Neena's sister Veena reached five days later than the day Neena was supposed to return. If Neena returned on Thursday, on what day did Veena return ?**

(a) **Friday**   (b) **Saturday**

(c) **Wednesday**   (d) **Sunday**

Sol. **(a)** Neena returned home on Thursday. Neena was supposed to return 3 days later, i.e., on Sunday.

Veena returned five days later from Sunday. i.e., on Friday.

∴ Option (a) is the correct option.

EXAMPLE **2**. **Vandana remembers that her father's birthday is between 13 th and 16 th of June. Whereas her brother remembers that their Father's birthday is between 14th and 18 th of June. On which day is their Father's birthday ?**

(a) **14 th June**   (b) **16 th June**

(c) **15 th June**   (d) **18 th June**

Sol. **(c)** According to Vandana her father's birthday is on one of the days among 14 th and 15 th June. According to Vandana's brother, the father's birthday is on one of the days among 15 th 16th and 17th June.

It is obvious that the father's birthday is on the day common to both the above groups. The common day is 15th June. Hence, the father's birthday falls on 15 th June.

∴ Option (c) is the correct option.

EXERCISE

1. Mohan and Suresh study in the same class. Mohan has secured more marks than Suresh in the terminal examination. Suresh's rank is seventh from top among all the students in the class. Which of the following is **definitely true?**
   (a) Mohan stood first in the terminal examination.
   (b) There is at least one student between Mohan and Suresh in the rank list.
   (c) There are at the most five students between Mohan and Suresh in the rank list.
   (d) Suresh is five ranks lower than Mohan in the rank list.

2. Fifteen children are standing in a row facing north. Ravi is to the immediate left of Prabha and is eighth from the left end. Arjun is second from the right end. Which of the following statements is not true?
   (a) Prabha is 7th from right end.
   (b) There are four children between Prabha and Arjun.
   (c) There are five children between Ravi and Arjun.
   (d) Arjun is 13th from the left end.

3. Rajnish is older than Rajesh and Raman. Ramesh is older than Rajesh but younger than Rajeev. Raman is older than Rajeev. Who among them is oldest?
   (a) Rajeev   (b) Rajesh
   (c) Rajnish   (d) Ramesh

4. If 'P' means 'division', 'T' means 'addition', 'M' means 'subtraction', and 'D' means 'multiplication' then what will be the value of the following expression?
   12 M 45 D 28 P 7 T 15 = ?
   (a) – 15   (b) 45
   (c) – 30   (d) None of these

5. If the positions of the first and the fifth digits of the number 83721569 are interchanged, similarly, the positions of the second and the sixth digits are interchanged, and so on, which of the following will be the third from the right end after the rearrangement?
   (a) 6   (b) 3
   (c) 2   (d) 7

6. If the positions of the first and the sixth digits of the group of digits 5904627813 are interchanged, similarly, the positions of the second and the seventh are interchanged, and so on, which of the following will be the fourth from the right end after the rearrangement?
   (a) 4   (b) 9   (c) 1   (d) 0

7. In a row of boys Akash is fifth from the left and Nikhil is eleventh from the right. If Akash is twenty-fifth from the right then how many boys are there between Akash and Nikhil?
   (a) 14   (b) 13   (c) 15   (d) 12

8. The positions of the first and the sixth digits in the number 3597280164 are interchanged. Similarly, the positions of the second and the seventh digits are interchanged, and

so on. Which of the following will be the fourth digit from the right end after the rearrangement?
   (a) 5   (b) 3   (c) 9   (d) 4

9. In a shop, there were 4 dolls of different heights M, N, O and P. 'P' is neither as tall as 'M' nor as short as 'O'. 'N' is shorter than 'P' but taller than 'O'. If Anvi wants to purchase the tallest doll, which one should she purchase?
   (a) Either M or P   (b) Either P or N
   (c) Only P   (d) Only M

10. If Nikhil is eleventh from the left in a row of boys, Rehaman is fourteenth from the right, how many boys are there in the row?
   (a) 25   (b) 23
   (c) 36   (d) Data inadequate

11. If it is possible to make a number which is perfect square of a two-digit odd number with the second, the sixth and ninth digits of the number 187642539. which of the following is the digit in the unit's place of that two-digit odd number ?
   (a) 1   (b) 7   (c) 9
   (d) No such number can be made

12. A, B, C, D and E, when arranged in descending order of their weight from top, A becomes third, E is between D and A, C and D are not at the top. Who among them is the second?
   (a) C   (b) B
   (c) E   (d) Data inadequate

13. Vijay's position is 14th from upwards in a class of 43 students. What will be his position from downwards?
   (a) 30th   (b) 28th
   (c) 29th   (d) 31st

14. Rakesh is on 9th position from upwards and on 38th position from downwards in a class. How many students are in class?
   (a) 47   (b) 45   (c) 46   (d) 48

15. Sarita is on 11th place from upwards in a group of 45 girls. If we start counting from downwards, what will be her place?
   (a) 36th   (b) 34th
   (c) 35th   (d) Can not be determined

16. Raman is 9th from downwards in a class of 31 students. What will be his position from upwards?
   (a) 21st   (b) 22nd   (c) 23rd   (d) 24th

17. Some boys are sitting in a line. Mahendra is on 17th place from left and Surendra is on 18th place from right. There are 8 boys in between them. How many boys are there in the line?
   (a) 43   (b) 42   (c) 41   (d) 44

18. In a line of boys, Ganesh is 12th from the left and Rajan is 15th from the right. They interchange their positions. Now, Rajan is 20th from the right. What is the total no. of boys in the class?
   (a) 30   (b) 29   (c) 32   (d) 31

19. In a queue, Vijay is fourteenth from the front and Jack is seventeenth from the end, while Mary is in between Vijay and Jack. If Vijay be ahead of Jack and there be 48 persons in the queue, how many persons are there between Vijay and Mary?
(a) 8   (b) 7   (c) 6   (d) 5

20. Malay Pratap is on 13th position from the starting and on 17th position from the end in his class. He is on 8th position from the starting and on 13th position from the end among the students who passed. How many students failed?
(a) 7   (b) 8
(c) 9   (d) Can not be determined

21. In a row of students, Ramesh is 9th from the left and Suman is 6th from the right. When they both interchange their positions then Ramesh will be 15th from the left. What will be the position of Suman from the right?
(a) 12th (b) 13th   (c) 15th   (d) 6th

22. In a row of children, Bhusan is seventh from the left and Motilal is fourth from the right. When Bhusan and Motilal exchange positions, Bhusan will be fifteenth from the left. Which will be Motilal's position from the right?
(a) Eighth   (b) Fourth
(c) Eleventh   (d) Twelfth

23. In a line of students Madhukar is on 15th position from right and Dhirendra is on 18th position from left. When they both interchange their positions then Madhukar is on 20th position from right. What will be the position of Dhirendra from left?
(a) 18th (b) 24th   (c) 23rd   (d) 20th

24. In a class of 45 students, among those students who passed, Anmol secured 11th position from upwards and 15th from downwards. How many students failed?
(a) 19   (b) 20   (c) 15   (d) 18

25. In a row at a bus stop, A is 7th from the left and B is 9th from the right. Both of them interchange their positions and thus A becomes 11th from the left. How many people are there in that row?
(a) 18   (b) 19   (c) 20   (d) 21

26. Ravi is 7 ranks ahead of Sumit in a class of 39. If Sumit's rank is seventeenth from the last, what is Ravi's rank from the start?
(a) 14th (b) 15th   (c) 16th   (d) 17th

27. In a row of 21 girls, when monika was shifted by four place towards the right, she became 12 th from the left end. What was her earlier positions from the right end of the row?
(a) 9th   (b) 10th   (c) 11th   (d) 14 th

28. In a row of girls . Rita and monika occupy the ninth place from the right end and tenth place from the left end respectively. If the interchange their places, then Rita and monika occupy seventh place from the right and eighteenth place from the left respectively How many girls are there in the row?
(a) 25   (b) 26
(c) 27   (d) Data inadequate

29. Ram and Sham are ranked 13th and 14th respectively is a class of 23. What are their ranks from the last respectively?
(a) 10 th : 11th   (b) 11 th; 12 th
(c) 11th ; 10 th   (d) None of these

30. Six buses B1, B2, B3, B4, B5 and B6 are parked around a circular path (not necessarily in the same order). B3 is third to the right of B6. B4 is to the immediate left of B1. B2 is second to the left of B6.   **[SSC Multitasking-2018]**
How many buses are between B5 and B1?
(a) 0   (b) 1   (c) 3   (d) 2

31. Five chairs J, H, P, S and M are placed in a row facing towards east (Not necessarily in the same order). P is second to the left of S. J is second to the right of H. M is to the immediate right of S.   **[SSC Multitasking-2018]**
Which of the following is the correct position of J?
(a) Third to the left of M
(b) Second to the right of H
(c) Exactly between S and H
(d) To the immediate right of S

32. Five toys A, B, C, D and E are kept one above the other (not necessarily in the same order). A is four places above C. D is between B and E. E is three places below A.
Three of the given four options follows a same logic based on their arrangement. Which of the following does not follow that logic?   **[SSC Multitasking-2018]**
(a) B D   (b) D E
(c) E C   (d) A C

33. Five articles, bat, ball, fan, table and chair, are kept one above the other (not necessarily in the same order). The bat is four places above the fan. The table is between the ball and the chair. The chair is three places below the bat.
[SSC Multitasking-2019]
Which article is at the second position from the top?
(a) Fan   (b) Table
(c) Ball   (d) Chair

34. Six persons P, Q, R, S, T and U read a magazine one after another.   **[SSC Multitasking-2020]**
I.   S was neither the first nor the last to read it.
II. There were as many readers between P and T as there were between R and P.
III. S read it sometime before Q, who read it sometime after U.
IV. The one who read it last had taken it from R.
Who were the two persons to have read the magazine first and last, respectively?
(a) T and Q   (b) P and Q
(c) T and U   (d) P and U

35. 19 persons are standing in a queue.
[SSC Multitasking-2020]
I.   Manish is 7th from the back.
II. Rinku is exactly in the middle fo Manish and Seema.
III. Seema and Rinku have three persons between them.
What is the position of Seema from the front?
(a) 5th   (b) 4th
(c) 6th   (d) 7th

36. The weight of seven boys B1, B2, B3, B4, B5, B6 and B7 are compared. The weight of B5 is less than only one boy and more than that of B6. The weight of B4 is neither more nor less than B6 but more than B1, B7, B3.
Who weighs the most?   **[SSC Multitasking-2021]**
(a) B5   (b) B2
(c) B6   (d) B1

Hints & Explanations

1. (c)

2. (d)   8th   9th   14th
         Ravi   Prabha   Arjun

3. (c)   Rajnish > Rajesh, Raman... (i)
         Rajeev > Ramesh > Rajesh ... (ii)
         Raman > Rajeev ... (iii)
         Combining all, we get
         Rajnish > Raman > Rajeev > Ramesh > Rajesh

4. (d) $12 - 45 \times 28 \div 7 + 15$
         $= 12 - 45 \times 4 + 15 = 27 - 180 = -153$

5. (b)   New arrangement of numbers is as follows: 15698372
         Hence, third number from right end is 3.

6. (b)   In the original group of digits '7' is fourth from the right, which is interchanged with '9'. The new series is 2781359046.

7. (b)   There are $(25 - 11 - 1 =)$ 13 boys between Akash and Nikhil.

8. (a)   After interchanging the number becomes as follows:
         8 0 1 6 4 3 **5** 9 7 2
         Hence, the fourth digit from the right end is 5.

9. (d)   The correct order of dolls according to descending order of their heights are:
         $M > P > N > O$
         Therefore, Anvi will purchase the doll M.

10. (d) We do not have information regarding the number of persons between Nikhil and Rehaman.

11. (b) The specified digits are 8, 2 and 9. Now, we know a perfect square number does not have 8 and 2 at unit's place. Therefore, we can make only two three-digit numbers from it, i.e., 829 and 289. Among these two numbers, 289 is a perfect square number, i.e., square of 17. Thus, unit's digit is 7 and ten's digit is 1.

12. (a) ------
         ----A----
         DEA - - [It is not possible as D is not at the top.]
         ---AED
         BCAED
         Hence, C is second among them.

13. (a) Vijay's position from downwards
         = [Total students – Vijay's position from upwards] + 1
         $= [43 - 14] + 1 = 30$th

14. (c) Total students
         = [Rakesh's position from upwards + Rakesh's position from downwards] – 1
         $= [9 + 38] - 1 = 46$

15. (c) Sarita's place from downwards
         $= \left[\begin{matrix} \text{Total} \\ \text{girls} \end{matrix} - \begin{matrix} \text{Sarita's place} \\ \text{from upwards} \end{matrix} \right] + 1$
         $= [45 - 11] + 1 = 35$th

16. (c) Raman's position from upwards
         $= \left[\begin{matrix} \text{Total} \\ \text{students} \end{matrix} - \begin{matrix} \text{Raman's} \\ \text{position} \\ \text{from down} \end{matrix} \right] + 1$
         $= [31 - 9] + 1 = 23$rd

17. (a) Total boys
         $= \left[\begin{matrix} \text{Mahendra's} \\ \text{place} \\ \text{from left} \end{matrix} + \begin{matrix} \text{Surendra's} \\ \text{place} \\ \text{from right} \end{matrix} \right] + \left[\begin{matrix} \text{Boys between} \\ \text{them} \end{matrix} \right]$
         $= [17 + 18] + 8 = 43$

18. (d) Total students
         = [First position of Ganesh + Second position of Rajan] – 1
         $= [12 + 20] - 1 = 31$

19. (b) Number of persons between Vijay and Jack
         $= 48 - (14 + 17) = 17$
         Now, Mary lies in middle of these 17 persons i.e., at the eighth position.
         So, number of persons between Vijay and Mary = 7.

20. (c) Total boys
         = [Malay's place from starting + Malay's place from end] – 1
         $= [13 + 17] - 1 = 29$
         Number of passed students
         = [Malay's place from starting + Malay's place from end] –1
         $= [8 + 13] - 1 = 20$
         ∴   Number of failed students $= 29 - 20 = 9$

21. (a) Position of Suman from right
         $= \left[\begin{matrix} \text{Difference of} \\ \text{Ramesh's position} \end{matrix} + \begin{matrix} \text{First position} \\ \text{of Suman} \end{matrix} \right]$
         $= [(15 - 9) + 6] = 12$th

22. (d) After exchanging positions, Bhusan becomes fifteenth instead of seventh from the left, it means there are 7 students between them. So Motilal's position from the right will become twelfth.
         [i.e., $(15 - 7) + 4 = 12$]

23. (c) Second place of Dhirendra from left

$$= \begin{bmatrix} \text{Difference of} \\ \text{places of} & + & \text{First place} \\ \text{Madhukar} & & \text{of Dhirendra} \end{bmatrix}$$

$= [(20 - 15) + 18] = 23\text{rd}$

24. (b) Failed Students
= [Total students] – [(Anmol's position from upwards)
+ (Anmol's position from downwards) – 1]
$= 45 - [(11 + 15) - 1] = 20$

25. (b) After interchanging their positions, position of A from left $= 11$

then positions of A form right $= 9$.

∴ The total no. of people in the row
$= (9 + 11) - 1 = 19$.

26. (c) Sumit is 17 th from the last and Ravi is 7 ranks ahead of sumit. So, Ravi is 24 th from the last.
Number of students ahead of Ravi in rank
$= (39 - 24) = 15$.
So, Ravi is 16th from the start.

27. (d) The change of place by Monika can be shown as under.

1 2 3 4 5 6 7 8 9 10 11 M 13 14 15 16 17 18 19 20 21

Clearly, Monika's earlier position was 8th from the left and 14th from the right end.

28. (b) Since Rita and Monika exchange places, so Rita's new position is the same as Monika's earlier positions. This position is 17th from the right and 10th from the left

∴ Number of girls in the row $= (16 + 1 + 9) = 26$.

29. (c) Rank of Ram from the last $= 23 - 13 + 1 = 11$
and Rank of Shyam from the last $= 23 - 14 + 1 = 10$

30. (d) Given Six Buses – B1, B2, B3, B4, B5, B6
Arrangement – Circular
Steps:
(a) B3 is third to the Right of B6
(b) B2 is second to the left of B6
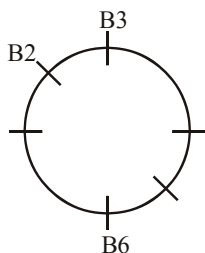
(c) B4 is to the immediate left of B1
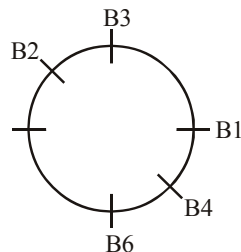
Only the Bus B5 is left.
Hence the final arrangement is
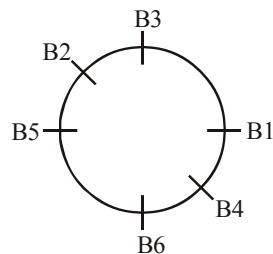
Hence 2 buses are between B5 and B1, as counted clockwise or anticlockwise direction.

31. (b)

(1) P is second to the left of S.

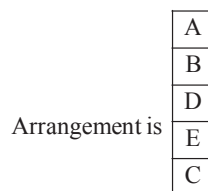(2) M is to the immediate right of S.

P ↑S M
‾‾‾‾‾‾‾‾‾‾

(3) J is second to the right of H

H P J S M
‾‾‾‾‾‾‾‾‾‾‾‾‾

Hence the correct position of J is second to the right of H.

32. (d)
(1) A is four place above C
(2) E is three places below A
(3) D is between B and E

Arrangement is

| A |
| B |
| D |
| E |
| C |

Here, all the pair follow the pattern of immediate neighbor of each other except AC.