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## Reasoning Aptitude

Directions (1-5): Study the following information carefully and answer the questions that follow:

```
1 R A 39m
2 S
```



```25m
T — C 27m
4 U—
49m
```

In the given figure the four-line segments $1,2,3,4$ are $\mathrm{RA}, \mathrm{SB}, \mathrm{TC}, \mathrm{UD}$ respectively. The lengths of the line are $39 \mathrm{~m}, 25 \mathrm{~m}, 27 \mathrm{~m}$ and 49 m respectively.

Six people Mohan, Sohan, Rohan, Ankit, Vinit and Sumit are standing in line 1-RA. All of them are facing north. With distance between them increasing in multiples of 7 from the left end (i.e. suppose Mohan is left end of the line at point R then the remaining people will stand at a distance as follows $-7 \mathrm{~m}, 14 \mathrm{~m}, 21 \mathrm{~m} . .$. from the end)

Mohan is standing at the left end of the line. Two persons are standing between Mohan and Sohan. Rohan stand second to the left of Sohan. Sumit is an immediate neighbor of Rohan. Only one person stands between Sumit and Ankit.
Similarly, six people Anita, Ambika, Amrita, Aanchal, Arpita and Ajita are standing in line-4 UD. All of them are facing south. with distance between them increasing in multiples of 9 from the end (i.e. if first person is right end of the line at point $U$ and the remaining will be stand at the distance as follows-9m, 18m,27 m.... from point U).

Amrita is standing is at $3^{\text {rd }}$ position from the right end. Arpita is an immediate neighbor Of Amrita. Two people are standing between Arpita and Ajita. More than three persons stand between Ajita and Anita. Aanchal stands to the immediate left of Ajita. Ambika and Arpita are immediate neighbours.

* Point S and Point T is left end of the row in line SB and line TC.

Q1. In the line-4 UD, what is the distance between Arpita and point D?
(a) 14 m
(b) 16 m
(c) 22 m
(d) 24 m
(e) None of these

Q2. If in line-1 RA, if peoples stand in distance of at multiples of 9 in the same order, and rest of them move to line-2 SB and stands from left end in the same order. And if in line 4-UD, if people stand in distance at multiples of 11 in the same order and rest of them move to line-3 TC, stands from left end in the same order. Then total together how many people are standing in lines 2 and 3?
(a) 1
(b) 2
(c) 3
(d) 4
(e) None of these

Q3. If in line 4-UD, if people stand in multiples of 13 in the same order and rest of them move to line-3 TC and stands from left end in the same order. Then the distance between Anita and point C is?
(a) 2
(b) 12
(c) 14
(d) 20
(e) None of these

Q4. Suppose line-1 RA is joined to line2-SB to form a new straight-line RB in such a way that distance between point $A$ and $S$ is 5 m . If the people in line- 1 RA are made to stand in multiples of 12 , then how far is Sohan from point B?
(a) 16
(b) 21
(c) 26
(d) 33
(e) None of these

Q5. If in line-1 RA people stand in distance at multiples of 9 in the same order and rest of them move to line- 2 SB in the same order, then who will be standing in line-2?
(a) Ankit
(b) Sumit
(c) Sohan
(d) Sohan and Sumit
(e) None of these

Q6. In the following question, three statements numbered I, II and III are given. Read all the statements and determine the cause and effect relationship between them.
I. In urban areas, the poor bear the brunt of environmental effects such as water or air pollution.
II. The rapid urban development has outpaced the development of environmental infrastructure in many large cities.
III. Just for the own sake of profit, builders in urban areas are indulge in construction work without tendering about the environment and urban poor, who mostly dies from chronical diseases.
(a) Statement II is the cause, I and III are its effects.
(b) Statement I is the cause, I and III are its effects.
(c) Statement III is the cause, I and II are its effects.
(d) Statement III is the cause and II is its effects while statement I is an effect of some independent cause.
(e) None of these

Speaking at the event, Modi said, "the decision to make cities smart will be taken not by governments but by the people of the city, the local administration. Let there be competition between cities in development so that smart cities come up."
Which of the following will be an effect of the initiative taken by the government?
(a) Ensuring water supply to each household, sewer connections, sanitation and solid waste management in rural and urban governance would be the focus under the scheme.
(b) Quality of life will improve in rural and urban areas.
(c) Provision of roads and public transportation beside implementation of reforms in urban governance would be the focus under the scheme.
(d) Millions of jobs will be created and scarcity of houses will be removed in urban and rural areas.
(e) All of the above.

Direction (8-9): In the following questions, the symbols \#, \&, @, *, \$, $\%$ and © are used with the following meanings as illustrated below. Study the following information and answer the given questions:
$P \# Q-P$ is the son of $Q$.
$P @ Q-Q$ is the child of $P$.
$\mathrm{P} \odot \mathrm{Q}$ - P is the parent of Q .
$\mathrm{P} \$ \mathrm{Q}$ - P is elder than Q .
$P^{*} Q-P$ is the husband of $Q$.
$P \& Q-Q$ is the daughter-in-law of $P$.
$\mathrm{P} \% \mathrm{Q}-\mathrm{P}$ is the wife of Q .

Q8. If $A @ B * D \& G \% E \$ F \# D$ then how is $F$ related to $A$ ?
(a) Grandfather
(b) Grandson
(c) Daughter
(d) Wife
(e) None of these

Q9. If $H^{*} \mathrm{M} \bigcirc O \$ N \# M$, the age of $N$ is 20 years and age of $H$, is 40 years then what is the probable age of O ?
(a) 17 years
(b) 15 years
(c) 23 years
(d) 45 years
(e) 12 years

Q10. The difficulty with the proposed high-speed train line is that a used plane can be bought for one-third the price of the train line, and the plane, which is just as fast, can fly anywhere. The train would be a fixed linear system, and we live in a world that is spreading out in all directions and in which consumers choose the free-wheel systems (cars, buses, aircraft), which do not have fixed routes. Thus a sufficient market for the train will not exist.
Which of the following, if true, most severely weakens the argument presented above?
(a) Cars, buses, and planes require the efforts of drivers and pilots to guide them, whereas the train will be guided mechanically.
(b) Cars and buses are not nearly as fast as the high-speed train will be.
(c) Planes are not a free-wheel system because they can fly only between airports, which are less convenient for consumers than the high-speed train's stations would be.
(d) The high-speed train line cannot use currently underutilized train stations in large cities.
(e) For long trips, most people prefer to fly rather than to take ground-level transportation.

Direction (11-15): In the following questions, the symbols $\#, \&$, @ and $\$$ are used with the following meanings as illustrated below. Study the following information and answer the given questions:
Note: The directions which are given indicates exact directions.
$P \# Q-Q$ is in the south direction of $P$.
$P @ Q-Q$ is in the north direction of $P$
$P \& Q-Q$ is in the east direction of $P$ at distance of either 12 m or 6 m
$P \$ Q-Q$ is in the west direction of $P$ at distance of either 15 m or 3 m .
$P \# \& Q-Q$ or $P$ is in the southeast direction of $P$ or $Q$.
$P @ \& Q-P$ or $Q$ is in the northeast direction of $Q$ or $P$.

Q11. If $A \& B \# \& C \$ D \& E @ F$ are related to each other such that $F$ is placed exactly between $A$ and $B$ on line $A B$. Similarly $D$ and $A$ are vertically inline then what is the possible shortest distance between F and B when DE (length of segment DE) < DC/2 and EC $<10 \mathrm{~m}$ ?
(a) 12 m
(b) 5 m
(c) 4 m
(d) 6 m
(e) None of these

Q12. If $A \& B \# \& C \$ D \& E @ F$ are related to each other such that $D @ \& B$ then what is the probable direction of $A$ with respect to $F$ ?
(a) North-west
(b) West
(c) South-west
(d) east
(e) Can't be determined

Q13. $K \# \& T \$ M \# \& S \& K \& Z$ are related to each other such that $K$ is in north of $M$ then what is the probable direction of $\mathbf{Z}$ with respect to $M$ ?
(a) North-east
(b) West
(c) South-west
(d) east
(e) Can't be determined

Q14. $K \# \& T \$ M \# \& S \& K \& Z$ are related to each other such that $K$ is in north of $M . M$ and $K$ are inline vertically when MT>SK then what is the distance between $S$ and $Z$ When $K Z=12 \mathrm{~m}$ ?
(a) 24 m
(b) 18 m
(c) 15 m
(d) Either (a) or (b)
(e) None of these

Q15. $K \# \& T \$ M \# \& S \& K \& Z$ are related to each other such that $K$ is in north of $M . M$ and $K$ are inline vertically when MT>SK then what is the sum of SK and MT?
(a) 27 m
(b) 21 m
(c) 15 m
(d) Either (a) or (b)
(e) Either (b) or (c)

Direction (16-17): Read the instruction carefully and give answer.

Six persons A, B, C, X, Y and Z are sitting in two parallel rows viz. row- 1 and row-2. A, B and C are sitting in row-1, while $X, Y$ and Z are sitting in another row. Some of them are facing north and some of them are facing south.
$X$ faces north. The one who sits opposite to $X$ sits second to the right of $C$. $B$ faces south and sits opposite to the one, who sits to the immediate right of Y . Y sits second right of X . A faces opposite direction of C . Y sits immediate right of Z .

Q16. How many persons faces north direction?
(a) Three
(b) Five
(c) Two
(d) One
(e) None of these

Q17. Who among the following sits second right of $A$ ?
(a) C
(b) $X$
(c) Y
(d) B
(e) None of these

Q18. Statement A. City $X$ has recently banned the sale of a drug - $X Y Z$, citing its misuse by youths for other activities.
Statement B. City Y has recently lifted its ban on the sale of the drug XYZ, after a sharp rise in the number of cases of Glaucoma.
Which of the following can be inferred from the above statements?
(a) Drug XYZ is only used in the treatment of Glaucoma.
(b) The number of Glaucoma patients in city $X$ is going to increase in the future.
(c) Drugs $X Y Z$ is also used by the sportspersons to enhance their athletic performance.
(d) Drug -XYZ can be used in the treatment of Glaucoma.
(e) None of these

Direction (19-23): Study the following information carefully and answer the question below-

* Numbers are given in the figure considered as their positions.


Eight persons Abhay, Isha, Riya, Rahul, Piya, Diya, Sahil, Sanyam are sitting around the circle having eight vacant chairs. Four of them are facing towards the center while four are facing outside the center.
Only two persons are sitting between Isha and Abhay. Sahil sits second right of Abhay. Rahul and Sahil are immediate neighbours. Riya sits third left of Rahul. Both Abhay and Isha are facing outside the center. Rahul is facing opposite direction of Isha. Piya sits immediate right of Sahil who is facing same direction as Abhay. Sanyam sits second left of Riya. Both Sanyam and Piya are facing same direction.
Now they start playing cards game. They shuffled a pack of cards. 1. Isha draws one card and changes her place according to the given conditions, 2. Abhay draws one card and changes his place according to the given conditions similarly others draw cards given in the condition below-

## Conditions:

1. If the card drawn is spade, the person who draws first moves to position 5 facing opposite direction of current direction, then the second person who also draw spade moves to position 6, similarly 7 and 8 .
2. If card drawn is heart, person remains on the same position facing same direction.
3. If the card drawn is diamond, the person who draws first moves to corner 1 facing same direction, then the second person, who also draw diamond moves to corner 2 , similarly 3 and 4 .
4. If card drawn is club, person remains on the same position facing opposite direction of current direction.

## Draws:

1. Isha draws queen of Club
2. Abhay draws Jack of Club
3. Piya draws 3 of Spade
4. Rahul draws a King of Diamond
5. Diya draws Ace of Heart
6. Sahil draws 9 of Heart
7. Sanyam draws 7 of Diamond
8. Riya draws 4 of Spade
*Note- All the persons draws card in a serial way as given above.
(ex- First Isha draws then Abhay draws $\qquad$ so on.....)

Q19. After all persons changed their places based on the above conditions, who among the following is sitting at the corner 2 of the square?
(a) Isha
(b) Diya
(c) Sahil
(d) Sanyam
(e) None of these

Q20. After all persons changed their places based on the above conditions, how many persons are remains in the circle?
(a) Two
(b) Four
(c) One
(d) Three
(e) None of these

Q21. After all persons changed their places based on the above conditions, then who among the following is sitting to the immediate right of Diya?
(a) Sahil
(b) Riya
(c) Abhay
(d) Piya
(e) None of these

Q22. After all persons changed their places based on the above conditions, then how many persons facing away from the center?
(a) Two
(b) One
(c) Five
(d) Three
(e) None of these

Q23. After all persons changed their places based on the above conditions, then who among the following is sitting at the position 6 of the square?
(a) Sahil
(b) Riya
(c) Piya
(d) Sanyam
(e) None of these

Q24. In an attempt to check its increasing pollution, Litter City has introduced a levy of Rs. 100 on every private car entering the city. The administration argues that the imposition of this levy, in addition of the existing toll at the entrance of the city, will switch people from using their cars to using the public transport.
Which of the following, if true, provides the best evidence that the city administration's argument is flawed?
(a) The city administration is already facing the ire of taxi drivers whose demand for a rate hike was turned down by the administration.
(b) A recent survey has shown that people living in Litter city have fewer cars than those in the neighboring clean city.
(c) Hardly $10 \%$ of the regular bus passengers own their own cars.
(d) The recent hike in the toll for cars already makes it more expensive for people to take a private car into the city than travel in a public transport.
(e) Both (a) and (d)

Direction (25-26): Read the following information answer the given questions.
The agitated guardians of grade IX students of a high-profile public school of North Carolina protested against the newly introduced audio-visual aid of teaching methodology. According to them, it is of benefit to a handful of students only, and majority of students will not be getting any help because of this technology.
These questions are based on the information given above and the sentences given below labeled as I, II, III, IV and V.
I. Change is a gradual process and it takes some time for people to adjust to it.
II. Guardians are happy with the new teaching methodology, i.e. via the use of audio-visual techniques.
III. It is not the responsibility of the school to take care of the weaker students.
IV. This modern technology of teaching should be scrapped as soon as possible.
V. Guardians are unhappy with the new teaching methodology used in the school.

Q25. Which of the following statements above could be a possible conclusion from the above passage?
(a) Only I
(b) Only II
(c) Only IV
(d) Both IV and II
(e) Only V

Q26. Which of the following could be a possible statement that should be used by the school management to defend themselves?
(a) Both II and V
(b) Only III
(c) Only I
(d) Only V
(e) Both IV and III

Direction (27-30): Study the following information and answer the given questions:
In alphabetical series $\mathrm{A}-\mathrm{Z}$ each letter except vowels is assigned a different number from 1-8 (for ex- B is coded as $1, \mathrm{C}-2 \ldots \ldots \ldots . . \mathrm{K}-8$ ) and again those numbers get repeated(for ex- L-1, M-2........so on).
Also each vowel is assigned a different symbol viz. \#, \$, \%, @, \&.

In coded language-
"She is girl" is coded as - $76 \%$ \#75\#61
"What did you like" is coded as - 26\$8 3\#3 4@\& 1\#8\%
"It is famous" is coded as - \#8 \#7 4\$2@\&7
(i) If both first and last letter of a word is vowel then the codes of both the vowels are interchanged.
(ii) If first letter of a word is vowel and last letter is consonant then both are to be coded as *.
(If the word does not satisfy the conditions given above then the letters of that word are to be coded as per the directions given above)

Q27. What can be the code of 'Nothing perfect'?
(a) 3@86\#53 4\%64\%28
(b) 3@68\#354\%64\%28
(c) $3 @ 86 \# 354 \% 64 \% 38$
(d) $3 @ 86 \# 354 \% 64 \% 28$
(e) None of these

Q28. What can be the code of 'Exam was easy'?
(a) *3\$* $2 \$ 7$ * $\$ 7$
(b) *3\$* $2 \$ 7 \% \$ 74$
(c) $\% 3 \$ 22 \$ 7 * \$ 7 *$
(d) *3\$* $2 \$ 7 \$ 74 \%$
(e) None of these

Q29. What can be the code of 'Create style'?
(a) $2 \# 6 \$ 8 \% 7841 \%$
(b) $26 \% \$ 8 \% 7814 \%$
(c) $26 \% \$ 8 \% 7841 \%$
(d) $26 \% \$ 6 \% 7841 \%$
(e)None of these

Q30. What can be the code of 'Strength of god'?
(a) 768\%35864@5@3
(b) $786 \% 3586$ ** $5 @ 3$
(c) $786 \% 3586$ @* $5 @ 3$
(d) 786\%38564@5@3
(e) None of these

Direction (31-33): Read the questions carefully and answer the following questions.
More than 10 persons were sitting in a circular row facing the centre. B is 3rd to the left of C.
Two person are sitting between D and B . A sits immediate right of E . One person is sitting between C and E. Less than two person are sitting between $D$ and $A$. A does not sit second to the right of $B$.

Q31. How many persons are sitting in the circular arrangement?
(a) 14
(b) 11
(c) 12
(d) 13
(e) None of these

Q32. What is the position $C$ with respect to $A$ ?
(a) Third to the left
(b) Third to the right
(c) Fourth to the left
(d) Fifth to the right
(e) None of these

Q33. How many persons are sitting between $B$ and $A$ in anti-clockwise direction?
(a) 3
(b) 4
(c) 5
(d) 6
(e) 7

Directions (34-35): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and;
(a) if the data in statement I alone are sufficient to answer the question, while the data in statement II alone are not sufficient to answer the question.
(b) if the data in statement II alone are sufficient to answer the question, while the data in statement I alone are not sufficient to answer the question.
(c) if the data either in statement I alone or in statement II alone are sufficient to answer the question.
(d) if the data even in both statements I and II together are not sufficient to answer the question.
(e) if the data in both statements I and II together are necessary to answer the question.

Q34. Five friends Q, R, S, T, V are married on different dates $12,19,21,28,31$ but not necessarily in the same order of the month of January and September on the same year. $T$ is married on which of the following date?
(I) Both T and Q are not married on even date of the month. T is married before Q . Two persons are married in between T and V .
(II) No body is married after R. S is married on a date in between $T$ and $\mathrm{Q} . \mathrm{S}$ is married on an even date. More than three persons are married in the same month.

Q35. Six boxes A, B, C, D, E, F of different colours are placed one above another. Also, each box has different number of toffees. No box has same number of toffees. Only two boxes are placed in between B and Green box. No box is placed above B. Box $D$ is placed immediately above Blue box. Only Red box is placed in between Green box and A. Only one box is placed between Red and Blue box. Only one box is placed in between $D$ and E. Only one box is placed between Orange box and C. Box $C$ is not of Red colour. How many number of toffees does Blue box have?
(I) Box E has more number of toffees than 8 while box C has more number of toffees than 20. Box D has 21 toffees. The box which has lowest and $2^{\text {nd }}$ lowest number of toffees has 10 and 12 toffees respectively. Box A, C, D and F has odd number of toffees.
(II) A has more number of toffees than B but not more than D . The difference in the number of toffees in box F and E is 7. The box which has highest number of toffees has 8 more toffees than box F . Total number of toffees in box B and A is 31 .

Directions (36-40): Study the following information carefully and answer the questions that follow:

Seven persons are sitting in a straight line. Four of them are facing south and remaining of them are facing north. They also like different fruits Apple, banana, grapes, guava, kiwi, mango and orange but not necessarily in the same order. Those seven people are also sitting in alphabetical order from left end.
The person who likes grapes sits second to the left of $P$. Two persons sit between the one who likes grapes and the one who likes banana. The immediate neighbours of the one, who likes banana faces opposite directions (i.e. if one faces to north then the other faces to south vice versa). Q likes kiwi. The one who likes mango sits second to the right to Q . Only one person sits between R and the one, who likes guava. The persons who like banana and Apple are immediate neighbours. The one, who likes orange sits third to the right of the person who likes Mango. Q and R face opposite directions (i.e. If one faces north then the other faces south vice versa). The one who likes banana faces south. The person who likes guava faces north.

Q36. Who among the following is sitting in a row?
(a) $X$
(b) V
(c) O
(d) U
(e) $M$

Q37. Who among the following person faces north direction?
(a) R
(b) S
(c) P
(d) $Q$
(e) O

Q38. Which of the following fruit does R like?
(a) Grapes
(b) Guava
(c) Mango
(d) Apple
(e) None of these

Q39. If apple is related to $P$ and Banana is related to $Q$ then kiwi is related to whom?
(a) R
(b) S
(c) T
(d) O
(e) None of these

Q40. Which of the following combination is true?
(a) P-Apple
(b) R-Banana
(c) S-orange
(d) O-grapes
(e) T-guava

Q41. The US President has downsized his country's nuclear arsenal, helped to negotiate a deal to halt Iran's nuclear-weapons programme and led a global initiative to secure radioactive materials. But his legacy on nuclear issues remains uncertain, as the progress in securing nuclear materials

Direction (42-45): A word and number arrangement machine when given an input line of words and numbers rearranges them following a particular rule in each step. The following is an illustration of input and rearrangement.

Input- njes glfu 53183144 wird dect
Step I: yktf 106 njes glfu 183144 dect
Step II: plgu 88 yktf 106 glfu 1831 dect
Step III: inhw 62 plgu 88 yktf 10618 dect
Step IV: fgev 36 inhw 62 plgu 88 yktf 106

Answer the following questions based on the following input: -
Input- olpu htqs 2173489 xcek bdgv

Q42. What will be the resultant if fifth number from the left end of step $I$ is added to fifth number from right end of step III?
(a) 153
(b) 106
(c) 117
(d) 98
(e) None of these

Q43. What will be the third step of the given input?
(a) Step III-42 jvsu qnrw 96 zegm 1469 bdgv
(b) Step III- jvsu 42 qnrw 96 zegm 146 bdgv 9
(c) Step III- jvsu 42 qnrw zegm 961469 bdgv
(d) Step III- jvsu 42 qnrw 96 zegm 1469 bdgv
(e) None of these

Q44. Which of the following word/number will be fourth to the left of sixth from the left end in step II?
(a) 96
(b) 146
(c) zegm
(d) bdgv
(e) None of these

Q45. What will be the twice of the difference of sixth number from the left end of step I and fifth number from right end of step IV?
(a) 14
(b) 12
(c) 28
(d) 44
(e) None of these

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