Direction (1–8) : In each of the Question a letter series is given with one term missing shown by question mark (?). This term is one of the four alternatvies given under it. Find the correct alternatives.

1. B, D, F, I, L, P, _?_.

(A) R (B) S (C) T (D) U

Ans. (C)

Sol. B, D, F, I, L, P, _T_.

+2 +2 +3 +3 +4 +4

So answer is T.

2. GH, JL, NQ, SW, YD, _?_.

(A) EJ (B) FJ (C) EL (D) FL

Ans. (D)

Sol. GH, JL, NQ, SW, YD, ?, (F) (L)

+4 +5 +6 +7 +8

+3 +3 +5 +6 +7

3. Z, U, Q, _?_, L.

(A) I (B) K (C) M (D) N

Ans. (D)

Sol. Z, U, Q, (N) ?, L

–5 –4 –3 –2

4. AZ, GT, MN, _?_, YB.

(A) JH (B) SH (C) SK (D) TS

Ans. (B)

Sol. AZ, GT, MN, (S)(H) ?, YB

–6 –6 –6 –6

+6 +6 +6 +6

5. ABD, DGK, HMS, MTB, SBL, _?_

(A) XKW (B) ZAB (C) ZKU (D) ZKW

Ans. (D)

Sol. ABD, DGK, HMS, MTB, SBL, ? (Z)(K)(W)

+7 +8 +9 +10 +11

+5 +6 +7 +8 +9

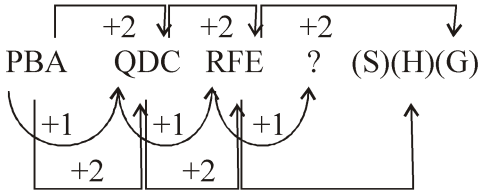
+3 +4 +5 +6 +7

6. PBA, QDC, RFE, _?_

(A) SHG (B) OAB (C) TJI (D) ULK

Ans. (A)

Sol.



7. PERPENDICULAR, ERPENDICULA, RPENDICUL, _?_

(A) PENDICULAR (B) PENDIC (C) ENDIC (D) PENDICU

Ans. (D)

Sol. In every term first and last alphabet is removed. So answer is PENDICU.

8. ST, ND, RD, TH, _?_

(A) TH (B) VW (C) RW (D) ST

Ans. (A)

Sol. ST, ND, RD, TH, _?_

They are the suffix for positional numbers,

eg 1^{st}, 2^{nd}, 3^{rd}, 4^{th} so next will be 5^{th}

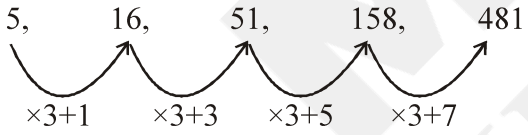
Direction (9–16) : In each of the Question a number series is given with one term missing shown by question mark (?). This term is one of the four alternatives given under it. Find the correct alternative.

9. 5, 16, 51, 158, _?_ .

(A) 1452 (B) 483 (C) 481 (D) 1454

Ans. (C)

Sol.



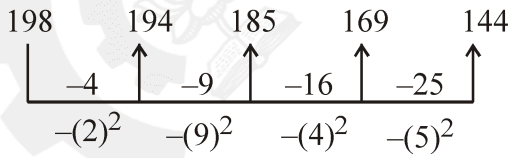
So answer is 481.

10. 198, 194, 185, 169, _?_ .

(A) 92 (B) 136 (C) 144 (D) 112

Ans. (C)

Sol.



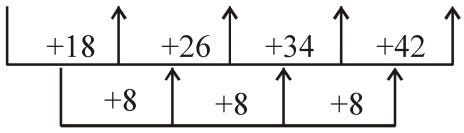
Answer is 144

11. 11, 29, 55, _?_, 131.

(A) 110 (B) 81 (C) 89 (D) 78

Ans. (C)

Sol. 11 29 55 89 131



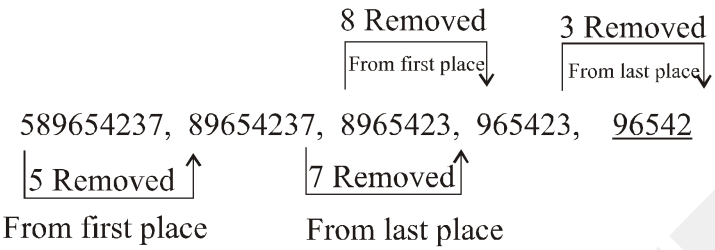
So answer is 89

12. 589654237, 89654237, 8965423, 965423, _?_ .

(A) 58965 (B) 65423 (C) 89654 (D) 96542

Ans. (D)

Sol.



So answer is 96542

13. 1, 1, 4, 8, 9, 27, 16, _?_.

(A) 32 (B) 64 (C) 81 (D) 256

Ans. (B)

Sol. In above series alternate series is square and cube series.

So first series is 1, 4, 9, 16

second series is 1, 8, 27, ?

So answer is 64 as it is 4^3.

14. 4, 9, 25, _?_, 121, 169, 289, 361.

(A) 49 (B) 64 (C) 81 (D) 87

Ans. (A)

Sol. 4, 9, 25, ?, 121, 169, 289, 361

$(B)^2, (C)^2, (5)^2, (?)^2, (11)^2, (13)^2, (17)^2, (19)^2$

It is prime number's square series so

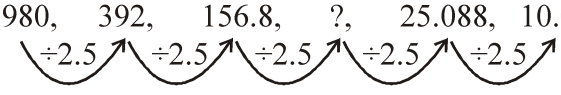
Answer is $(7)^2 = 49$.

15. 980, 392, 156.8, _?_ , 25.088, 10.0352.

(A) 65.04 (B) 60.28 (C) 62.72 (D) 63.85

Ans. (C)

Sol. 980, 392, 156.8, ?, 25.088, 10.0352



Answer is 62.72

16. 3, 10, 101, _?_ .

(A) 10101 (B) 10201 (C) 10202 (D)11012

Ans. (C)

Sol. 3, 10, 101, _?_

$10 = (C)^2 + 1$

$101 = (10)^2 + 1$

So next term $(101)^2 + 1 = 10201 + 1 = 10202$

Direction (17–19) : In Question you have two statements and two conclusions **I** and **II**. You have to assume the given statements as true even if it seems to vary from commonly known facts. Read all teh conclusions carefully and decide which of the given conclusions logically follow(s) from the two given statements even disregarding commonly known facts.

17. **Statements :** (i) : Most of the 64 number buses go to my office.

(ii) : This is 64 number bus.

Conclusions : (i) : This bus goes to my office.

(ii) : This bus does not go to my office.

(A) Only conclusion I follows.

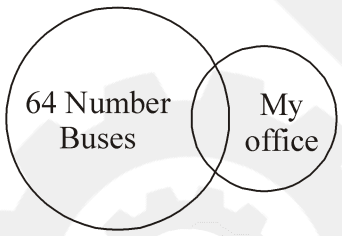
(B) Only conclusion II follows.

(C) Both conclusions I and II follow.

(D) Neither conclusion I nor II follows.

Ans. (D)

Sol.



18. **Statements :** (i) Some Indians are educated.

(ii) Educated presons like small families.

Conclusions : (i) All small families are educated.

(ii) Some Indians like small families.

(A) Only conclusion I follows.

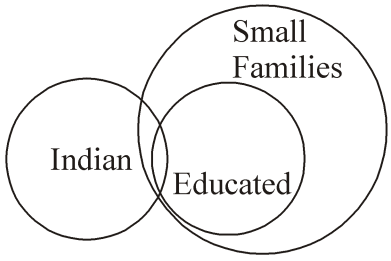
(B) Only conclusion II follows.

(C) Both conclusions I and II follow.

(D) Neither conclusion I nor II follows.

Ans. (B)

Sol.



19. **Statements :** (i) Vitamin B-complex is best for health

(ii) Fruits contqan Vitamin B-complex

Conclusions : (i) We should grow fruits.

(ii) Fruits are good for health.

(A) Only conclusion I follows.

(B) Only conclusion II follows.

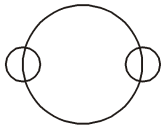
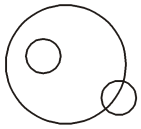
(C) Both conclusions I and II follow.

(D) Neither conclusion I nor II follows.

Ans. (B)

Sol. By observation

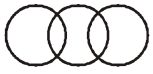
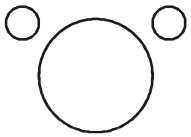
20. Which one of the following Venn diagrams correctly represents the relations between India, Pakistan and Asia?

(A)  (B)  (C)  (D) 

Ans. (B)

Sol. By observation

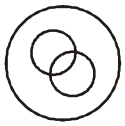
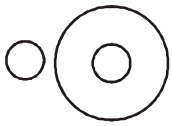
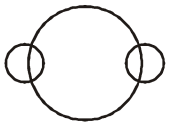
21. Which one of the following Venn diagrams correctly represents the relation between Police, Thief and Criminal ?

(A)  (B)  (C)  (D) 

Ans. (A)

Sol. By observation

22. Which one of the following Venn diagrams correctly represents the relation between Rajasthan, Jaipur and Amer ?

(A)  (B)  (C)  (D) 

Ans: (B)

Sol. by observation

23. In a coded language, BRAIN is written as *% #× and TIER is written as $# + % then in the same coded language, RENT will be written as.

(A) %×#$ (B) %#×$ (C) %+×$ (D) +×%$

Ans. (C)

Sol. BRAIN $\rightarrow$ * % ÷ # ×

TIER $\rightarrow$ $ # + %

RENT $\rightarrow$?

24. In a coded language, TILE is written as 7235 and DEAL is written as 9543; then in the same coded language, DIET will be written as.

(A) 9257 (B) 9527 (C) 9725 (D) 9275

Ans. (A)

Sol. TILE $\rightarrow$ 7235

DEAL $\rightarrow$ 9543

DIET $\rightarrow$?

by observation code for

D $\rightarrow$ 9

I $\rightarrow$ 2

E $\rightarrow$ 5

T $\rightarrow$ 7

So answer is 9257.

25. In a coded language, ZEBRA is written as 2652181 ; then in the same coded language, COBRA will be written as.

(A) 3152181 (B) 1182153 (C) 31822151 (D) 302181

Ans. (A)

Sol. ZEBRA $\rightarrow$ 2652181

COBRA $\rightarrow$?

From observation number as code represent the number of that alphabet like.

Z $\rightarrow$ 26 B $\rightarrow$ 2 A $\rightarrow$ 1

E $\rightarrow$ 5 R $\rightarrow$ 18

Similarly for COBRA $\rightarrow$ 3152181

26. In a coded language, E is written as 5 and HOTEL is written as 12 ; then in the same coded language, LAMB will be written as.

(A) 28 (B) 26 (C) 7 (D) 10

Ans. (C)

Sol. E = 5 LAMB = ?

HOTEL = 12

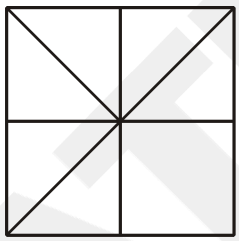
SO H = 8, 0 = 15, T = 20, E = 5, L = 12

HOTEL = 8 + 15 + 20 + 5 + 12 = 60

If we divide the sum by number of alphabet in word HOTEL, which in 5 then Code for HOTEL in 12.

Similarly for LAMB = 12 + 1 + 13 + 2 = 28 if 28 in divided by 4 then answer is 7

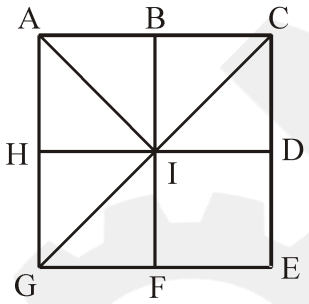
27. How many triangles are there in the figure given below ?



(A) 10 (B) 8 (C) 11 (D) 12

Ans. (A)

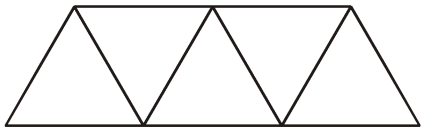
Sol.



ΔAIB, ΔBIC, ΔAIC, ΔACG, ΔGCE, ΔCID, ΔGIF

There are 10 triangles. , ΔAIH, ΔHIG, ΔAIG

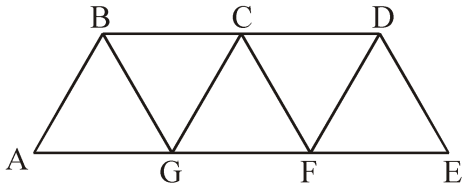
28. How many parallelograms are there in the following figure ?



(A) 6 (B) 3 (C) 4 (D) 5

Ans. (A)

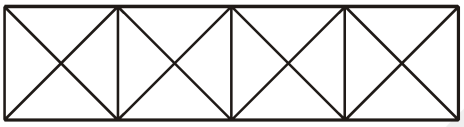
Sol.



Parallelogram, ABCG, CGFD, BCFG, GDEF, BDEG, ABDF

There are 6 Parallelogram.

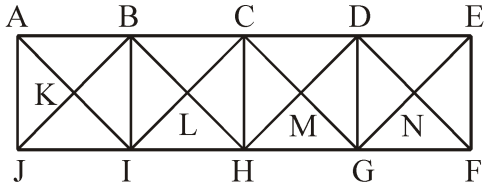
29. How many hexagons are there in the following figure ?



(A) 1 (B) 2 (C) 3 (D) 4

Ans. (C)

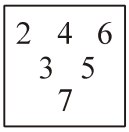
Sol.



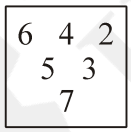
Hexagons, KBCMHI, LCDNGH, KBDNGI,

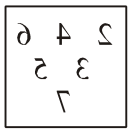
There are 3 Hexagons.

Direction (30–33) : In Question , find the correct mirror image of the given figure, when mirror is placed on right side of the figure.

30. 

(A) 

(B) 

(C) 

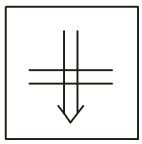
(D) 

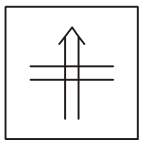
Ans. (C)

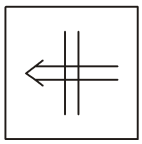
Sol. By observation

31. 

(A) 

(B) 

(C) 

(D) 

Ans. (D)

Sol. By observation

32. PRAYER

(A) ꟼЯAYƎЯ (B) ЯƎYAЯꟼ (C) ЯƎꟼAƎЯ (D) ꟼЯAYƎЯ

Ans. (B)

Sol. By observation

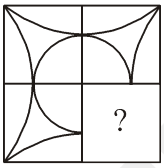
33. 12698

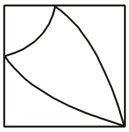
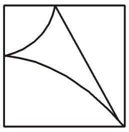
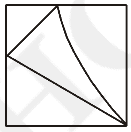
(A) 1ᄅ698 (B) 1Ƨ698 (C) 869Ƨ1 (D) 12968

Ans. (C)

Sol. By observation

34. Which of the answer-figures will complete the matrix figure ?



(A)  (B)  (C)  (D) 

Ans. (C)

Sol. by observation

35. How many numbers from 1 to 50 are there which are prime ?

(A) 10 (B) 20 (C) 15 (D) 18

Ans. (C)

Sol. Required prime numbers = 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

36. If it was Sunday on 1^{st} January, 2006 when what was the day on 1^{st} January, 2007 ?

(A) Sunday (B) Monday (C) Tuesday (D) Saturday

Ans. (B)

Sol. 1^{st} January, 2006 $\rightarrow$ sunday.

1^{st} January, 2007 $\rightarrow$?

As we know 2006 was an ordinary year so number fo odd day in 1.

so sunday + 1 = monday 1^{st} January 2007 was monday.

37. (A) Bengaluru (B) Nagpur (C) Bhopal (D) Ranchi

Ans. (B)

Sol. As Nagpur in not capital of any state of India.

38. (A) Green (B) Pink (C) Indigo (D) Violet

Ans. (B)

Sol. Except Pink rest of the colous present in rainbow as VIBGYOR

39. (A) September (B) April (C) November (D) January

Ans. (D)

Sol. Only Janauary month contains 31 days in given options. Rest contains 30 days.

40. (A) Tomato (B) Potato (C) Carrot (D) Onion

Ans. (A)

Sol. Except Tomato all are roots.

41. (A) Rectangle (B) Square (C) Triagngle (D) Rhombus

Ans. (C)

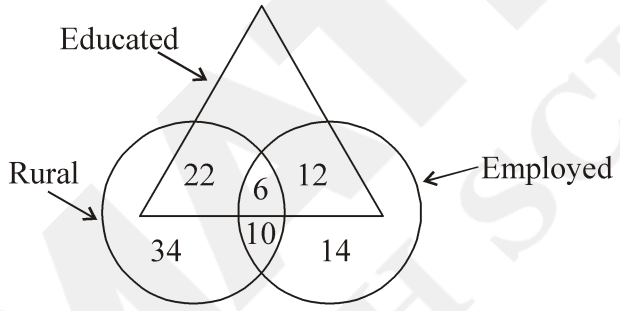
Sol. Except Triangle all shapes have four sides.

42. (A) 23 (B) 51 (C) 63 (D) 15

Ans. (A)

Sol. 23 is prime number **or** except 23 all are divisible by 3.

43. How many educated people are employed ?



(A) 18 (B) 26 (C) 24 (D) 20

Ans. (A)

Sol. 6 + 12 = 18 educted people are employed.

Direction (44–48): The following questions are based on the diagram given below. Study the diagram carefully and answer the questions based upon it.

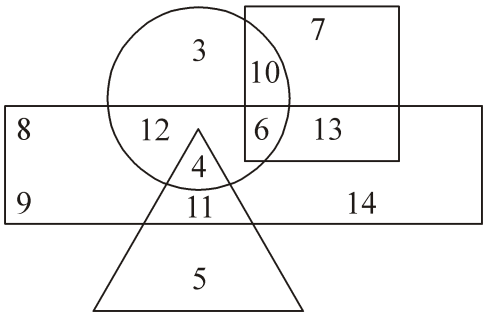
In the diagram

(i) Rectangle represents males

(ii) Triangle represents educated

(iii) Circle represents urban, and

(iv) Square represents civil servants.



44. How many among the following are educated males, who are not an urban resident ?

(A) 10 (B) 4 (C) 11 (D) 9

Ans. (C)

Sol. By observation

45. How many among the following are neither civil servant nor educated but are urban and not a male ?

(A) 2 (B) 3 (C) 6 (D) 10

Ans. (B)

Sol. By observation

46. How many among the following are female, urban resisent and also a civil servant?

(A) 6 (B) 7 (C) 10 (D) 14

Ans. (C)

Sol. By observation

47. How many among the following are educated male who hail from urban area ?

(A) 4 (B) 2 (C) 5 (D) 11

Ans. (A)

Sol. By observation

48. How many among the following are only a civil servant but neither male nor urban oriented and uneducated ?

(A) 10 (B) 8 (C) 7 (D) 9

Ans. (C)

Sol. By observation

49. Arrange the following in a meaningful sequence :

1. Probation 2. Interview 3. Selection 4. Appointment
5. Advertisement 6. Application.

(A) 5, 6, 2, 3, 4, 1 (B) 5, 6, 3, 2, 4, 1 (C) 5, 6, 4, 2, 3, 1 (D) 6, 5, 4, 2, 3, 1

Ans. (A)

Sol. This sequence is of job selection process in any organization.

So, First step is **Advertisement**, based on it candidate give **Application**, then next step will be **Interview**, based on interview candidate pass through **Selection** process. After selection process candidate will get **Appointment** and then worked on **Probation**.

50. Arrange the following in a meaningful sequence :

1. Jaipur 2. Universe 3. Rajasthan 4. India
5. Asia.

(A) 1, 2, 3, 4, 5 (B) 1, 3, 4, 5, 2 (C) 1, 4, 3, 5, 2 (D) 1, 3, 5, 2, 4

Ans. (B)

Sol. This sequence is of smallest to largest things in area.

51. As Kandla is related to Gujarat, in the same way Kochin is related to which of the following ?

(A) Karnataka (B) Goa (C) Chennai (D) Kerala

Ans. (D)

Sol. Kandla is in Gujarat , thus Kochin is in Kerala.

52. As India is related to New Delhi, in the same way Pakistan is related to which of the following ?

(A) Rawalpindi (B) Peshawar (C) Lahore (D) Islamabad

Ans. (D)

Sol. New Delhi is capital of India. Thus, the capital of Pakistan is Islamabad.

53. As Rupee is related to India, in the same way Yen is related to which of the following ?

(A) Turkey (B) Bangladesh (C) Japan (D) Pakistan

Ans. (C)

Sol. Rupee is currency of India.

thus, yen is currency of Japan.

54. If A > B, B > C and C > D, then which of the following conclusions is definitely wrong ?

(A) A > C (B) A > D (C) B > D (D) D > A

Ans. (D)

Sol. Given ; A > B, B > C, C > D

by observation, D > A is not true.

Direction (55–59): In each of the Question choose the correct alternative assuming α stands for '=' ; β stands for '>'; γ for '<' and δ for '$\neq$'.

Sol. (55 to 59)

$\alpha \rightarrow =$

$\beta \rightarrow >$

$\gamma \rightarrow <$

$\delta \rightarrow \neq$

55. If $6x \ \alpha \ 5y$ and $2y \ \beta \ 3z$, then

(A) $2x \ \beta \ 3z$ (B) $4x \ \beta \ 3z$ (C) $2x \ \gamma \ z$ (D) $4x \ \alpha \ 3z$

Ans. (B)

Sol. $6x \ \alpha \ 5y \Rightarrow 6x = 5y \Rightarrow y = \frac{6}{5}x$

and $2y \ \beta \ 3z \Rightarrow 2y > 3z$

put the value of y

$2 \times \frac{6}{5}x > 3z, \ 12x > 15z, \ 4x > 5z$

56. If $ax \gamma by$, $bx \alpha cz$ and $b^2 \alpha ac$, then

(A) $ax \beta cy$ (B) $ay \alpha cz$ (C) $y \gamma z$ (D) $y \beta z$

Ans. (D)

Sol. $ax\ y\ by \Rightarrow ax < by$ ..... (A)

$bx \alpha az \Rightarrow bx = cz \Rightarrow x = \frac{cz}{b}$ $\Rightarrow$ $b^2 \alpha ac \Rightarrow b^2 = ac$ ..... (C)

Put the value of x in (A) $\Rightarrow$ $a\frac{cz}{b} < by$

$acz < b^2y$ $\Rightarrow$ $acz < acy \Rightarrow z < y$

57. If $abxy \alpha c^2z$, $bx \beta ay$ and $b^2 \alpha ac$, then

(A) $ax^2 \beta cz$ (B) $a^2x^2 \beta cz$ (C) $b^2x \beta c^2z$ (D) $bx^2 \beta c^2z$

Ans. (A)

Sol. $abxy \alpha c^2z \Rightarrow abxy = c^2z$ ... (A) $\Rightarrow$ $bx \beta ay \Rightarrow bx > ay$ .... (B)

$b^2 \alpha ac \Rightarrow b^2 = ac$ .... (C) $\Rightarrow$ Multiply (A) & (C)

$abacny = b^2c^2z$ $\Rightarrow$ $a^2xy = bcz$

$y = \frac{bcz}{a^2x}$ $\Rightarrow$ put in equation (B)

$bx > a \times \frac{bcz}{a^2x} \Rightarrow ax^2 > cz = ax^2 \beta cz$

58. If $bcy \gamma ax$, $cy \alpha bz$ and $a^2 \gamma bc$, then

(A) $cx \alpha abz$ (B) $cx \gamma abz$ (C) $cx \delta abz$ (D) $c^2x \gamma a^2z$

Ans. (C)

Sol. $bcy \gamma ax \Rightarrow bcy < ax$ ..... (A) $cy \alpha bz \Rightarrow cy = bz$ .... (B)

$a^2 \gamma bc \Rightarrow a^2 < bc$ ... (C) from (B) $y = \frac{bz}{c}$

put in equation (A) $b\left(\frac{bz}{c}\right) < ax$

$b^2z < ax$ .... (D) multiply (D) and (C)

$a^2b^2z < bcax \Rightarrow cx > abz$, $cx \neq abz$

59. If $a^2x \alpha byz$, $czx \alpha b^2y$ and $c^2z \alpha axy$, then

(A) $abc \alpha xyz$ (B) $abc \beta xyz$ (C) $abc \delta xyz$ (D) $abc \gamma xyz$

Ans. (A)

Sol. $a^2x \alpha byz \Rightarrow a^2x = byz$ .... (A) $b^2y \alpha czx \Rightarrow b^2y = czx$ .... (B)

$c^2z \alpha axy \Rightarrow c^2z = axy$ .... (C) multiply all three equations.

$a^2x.b^2y.c^2z = byz.czx.axy$ $abc = xyz$

$abc \alpha xyz$

Direction (60–63): Read the information given below to answer the questions that follow.

(i) A $ B means A is mother of B. (ii) A ≠ B means A is father of B.

(iii) A @ B means A is husband of B. (iv) A % B means A is daughter of B.

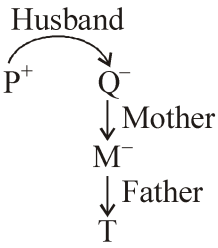
60. If P @ Q $ M ≠ T, then what relationship is of P with T ?

(A) Maternal grandfather (B) Maternal grandmother

(C) Paternal grandfather (D) Paternal grandmother

Ans. (C)

Sol.

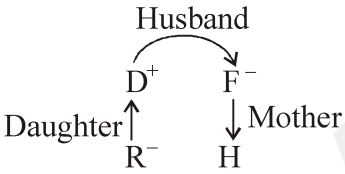


61. Which of the following expressions indicated that 'R is the sister of H' ?

(A) H $ D @ F ≠ R (B) R % D @ F $ H (C) R $ D @ F ≠ H (D) H % D @ F $ R.

Ans. (B)

Sol.

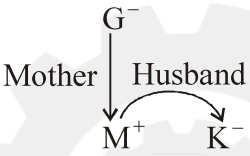


62. If G $ M @ K, then how is K related to G ?

(A) Mother-in-law (B) Daughter (C) Daughter-in-law (D) None of these

Ans. (C)

Sol.



63. Which of the following expressions indicated H is the brother of N ?

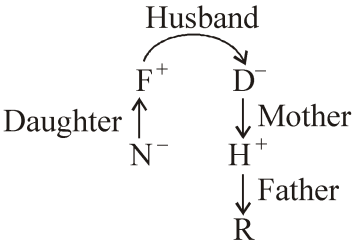
(A) H ≠ R $ D $ N (B) N % F @ D $ H ≠ R

(C) N % F @ D $ H (D) N % F @ D % H.

Ans. (B)

Sol. By option (B)

N % F @ Δ $ H ≠ R



64. If $2x + y = 35$ and $3x + 4y = 65$, then $\frac{x}{y} =$

(A) 30 (B) 2 (C) 5 (D) 3

Ans. (D)

Sol. $2x + y = 35$ ..... (A)

$3x + 4y = 65$ ..... (B)

multiplying eqution (A) by 4 & subtract eqatuion (B)

$5x = 75$

$x = 15$

$\Rightarrow y = 5$

so $\frac{x}{y} = \frac{15}{5} = 3.$

65. If $4P = (47)^2 - (43)^2$, then P = ?

(A) 360 (B) 90 (C) 4^2 (D) None of these

Ans. (B)

Sol. $4p = (47 - 43)(47 + 43)$ ($\because a^2 - b^2 = (a - b)(a + b)$)

$4p = 4 \times 90$

$p = 90$

66. Value of $\frac{(3.572)^3 + (2.428)^3}{(3.572)^2 - 3.572 \times 2.428 + (2.428)^2}$ is.

(A) 17.12 (B) 7 (C) 6 (D) None of these

Ans. (C)

Sol. $a^3 + b^3 = (a + b)(a^2 + b^2 - ab)$

so ans is $3.572 + 2.428 = 6$

67. The surface are of a cube is 150 sq. cm. What is the length of its diagonal (in cm) ?

(A) $\frac{5}{2}$ (B) $\frac{5\sqrt{3}}{2}$ (C) $5\sqrt{2}$ (D) $5\sqrt{3}$

Ans. (D)

Sol. surface area of cube is $6a^2$

$6a^2 = 150$

$a^2 = \frac{150}{6} = 25$

$a = 5$

length of diagonal

$= 5\sqrt{3}$

68. The average of three numbers is 20. If two of the numbers are 16 and 22, then the third is

(A) 18 (B) 20 (C) 19 (D) 22

Ans. (D)

Sol. Let third number is x.

$$\frac{16+22+x}{3}=20$$

$38 + x = 60$

$x = 60 - 38 = 22$

69. Of which number is 10608049 a square ?

(A) 4135 (B) 3009 (C) 13263 (D) 3257

Ans. (D)

Sol. 10608049 is a square of 3257.

70. Identify the missing term (?) :

6	7	42	13
13	3	39	16
4	?	28	11

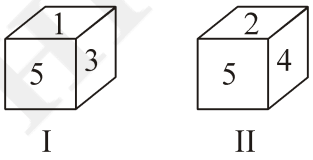
(A) 1 (B) 0 (C) 5 (D) 7

Ans. (D)

Sol.

6	7	6×7=42	6+7=13
13	3	13×3=39	13+3=16
4	? = 7	4×7=28	4+7=11

71. The two positions of a single die are given below. Which digit will be at the face opposite to the face having digit 4 ?



I II

(A) 1 (B) 2 (C) 3 (D) 6

Ans. (C)

Sol. $5 \rightarrow 1 \rightarrow (C)$

$5 \rightarrow 2 \rightarrow (D)$

so opposite to 4 is 3.

72. How many smaller cubes of 1 cm side can be formed with a solid cube of 3 cm side ?

(A) 3 (B) 6 (C) 9 (D) 27

Ans. (D)

Sol. Volume will remain same.

$n \times 1^2 = 3^3$

$n = 27$

73. How many times the hour hand and the minute hand of a clock are at right angle in a day ?

(A) 24 (B) 48 (C) 22 (D) 44

Ans. (D)

Sol. 44 times

74. If 1 + 4 = 9, 2 + 8 = 18 and 3 + 6 = 15, then 7 + 8 =

(A) 32 (B) 41 (C) 23 (D) 30

Ans. (C)

Sol. $4 \times 2 + 1 = 9$

$8 \times 2 + 2 = 18$

$6 \times 2 + 3 = 15$, so $8 \times 2 + 7 = 23$

Direction (75–79) : Study the following information carefully and answer the questions given below :

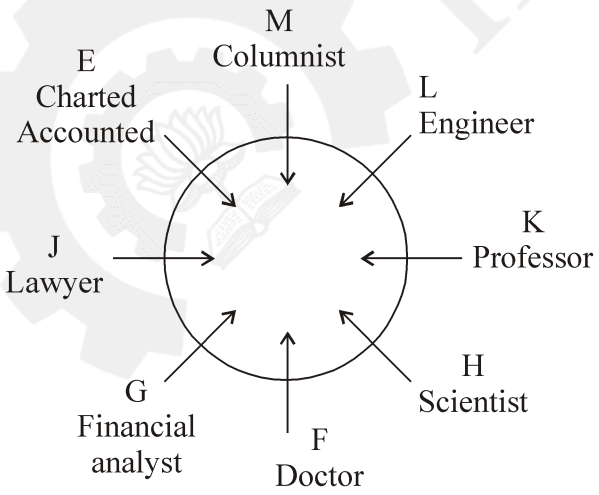
Eight people -E, F, G, H, J, K, L and M are sitting around a circular table facing the centre. Each of them is of a different profession : Chartered Accountant, Columnist, Doctor, Engineer, Financial Analyst, Lawyer, Professor and Scientist but not necessarily in the same order. F is sitting second to the left of K. The Scientist is an immediate neighbour of K. There are only three people between the Scientist and E. Only one person is sitting between the Engineer and E. The Columnist is to the immediate right of the Engineer. Mis second to the right of K His the Scientist. G and J are immediate neighbours of each other. Neither G nor J is an Engineer. The Financial Analyst is to the immediate left of F. The lawyer is second to the right of the Columnist. The Professor is an immediate neighbour of the Engineer. G is second to the right of the Chartered Accountant.

75. Who is sitting second to the right of E ?

(A) Lawyer (B) G (C) Engineer (D) F

Ans. (B)

Sol.

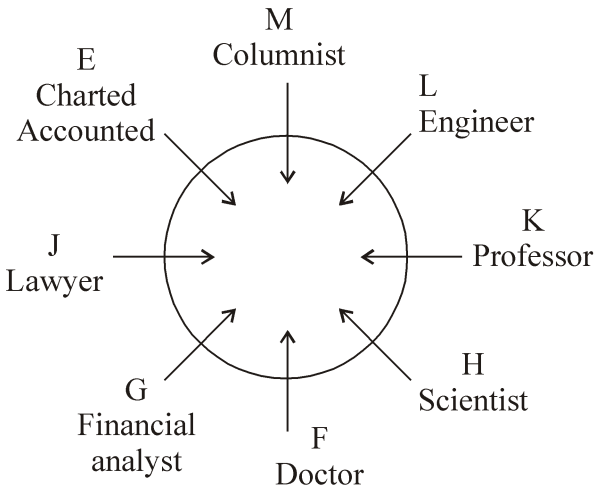


76. Who amongst the following is the Professor ?

(A) F (B) L (C) M (D) K

Ans. (D)

Sol.



77. Three of the following four are alike in a certain way based on the given arrangement and hence form a group. Which of the following does not belong to the group ?

(A) Charactered accountant - H

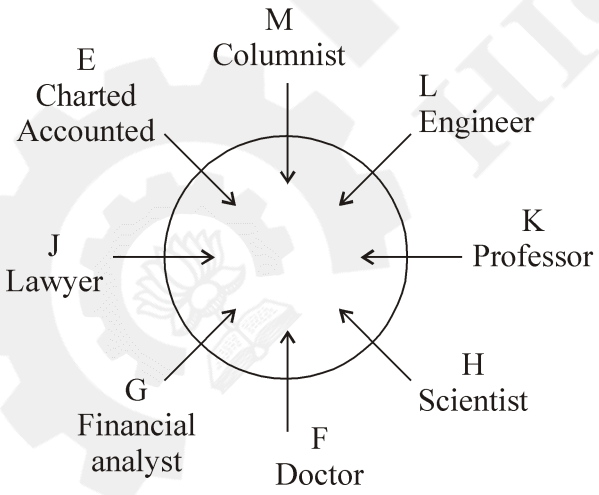
(B) Doctor - M

(C) Engineer - J

(D) Financial analyst - L

Ans. (C)

Sol.



78. What is the position of L with respect to the Scientist ?

(A) Third to the left

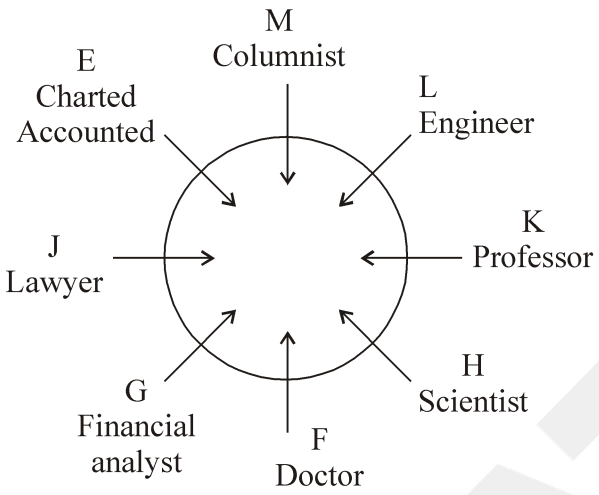
(B) Second to the right

(C) Second to the left

(D) Third to the right

Ans. (B)

Sol.



79. Which of the following statement(s) is/are true according to the given arrangement ?

(A) The lawyer is second to the left of the doctor

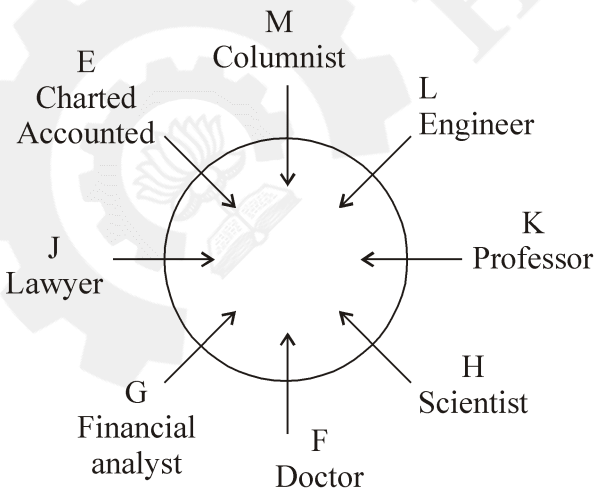
(B) E is an immediate neighbour of the Financial analyst

(C) H sits exactly between F and the financial analyst

(D) Only four people sit between the Columnist and F.

Ans. (A)

Sol.



80. If 381A is divisible by 9 then the value of the smallest natural number A is :

(A) 5 (B) 6 (C) 7 (D) 9

Ans. (B)

Sol. 381A is divisible by a if 3+8+1+A divisible by 9.

3+8+1+A = 9+3+ A

So A = 6

81. The average of first five multiples of 3 is :

(A) 3 (B) 9 (C) 12 (D) 15

Ans. (B)

Sol. First five multiple of 3 is 3,6,9,12,15

$$\text{Average} = \frac{3+6+9+12+15}{5} = \frac{45}{5} = 9$$

82. If $81^y = \frac{1}{27^x}$, then the value of x in terms of y is :

(A) $\frac{37}{4}$ (B) $-\frac{37}{4}$ (C) $\frac{4y}{3}$ (D) $-\frac{4y}{3}$

Ans. (D)

Sol. $81^y = \frac{1}{27^x}$

$3^{4y} = 3^{-3x}$

So $4y = -3x$

$x = \frac{-4}{3}y$

83. If $\frac{10a^2+ab}{3ab-b^2}$, then a : b is :

(A) 2 : 3 (B) 2 : 5 (C) 3 : 4 (D) 3 : 7

Ans. (B)

Sol. $\frac{10a^2+ab}{3ab-b^2} = \frac{10}{1}$

$10a^2 + ab = 30\,ab - 10b^2$

$10a^2 + 10b^2 - 29ab = 0$

$$10\left(\frac{a^2}{b^2}\right)+10-29\left(\frac{a}{b}\right)=0$$

Let $\frac{a}{b} = k$

$10k^2 - 29k + 10 = 0$

$10k^2 - 25k - 4k + 10 = 0$

$5k\,(2k - 5) - 2(2k - 5) = 0$

$(5k - 2)(2k - 5) = 0$

So $k = \frac{2}{5}, \frac{5}{2}$

From the choices ans is 2 : 5

84. If $\sqrt{5 + \sqrt[3]{x}} = 3$, then the value of x is :

(A) 125 (B) 64 (C) 27 (D) 9

Ans. (B)

Sol. On squering both side

$5 + \sqrt[3]{x} = 9$

$\sqrt[3]{x} = 4$

$x = 64$

85. The least common multiple (LCM) of the two numbers is 12 times their highest common factor (HCF). The sum of HCF and LCM is 403. If one number is 93, then the other is :

(A) 134 (B) 128 (C) 124 (D) None of these

Ans. (C)

Sol. Let

L.C.M. = x

H.C.F. = y

$x = 12\ y$ $x + y = 403$

we know that $12y + y = 403$

$x \times y = a \times b$ $13y = 403$

$12y^2 = 93 \times b$ $y = 31$

Put y = 31

$12 \times 31 \times 31 = 93 \times b$

$b = 124$

86. If one integer is greater than another integer by 3 and the difference of their cubes is 117, then what would be the sun of these two integers ?

(A) 7 (B) 8 (C) 9 (D) 11

Ans. (A)

Sol. Let the integers are x and y

$x = y + 3$

given that

$x^3 - y^3 = 177$

$(y + 3)^3 - y^3 = 177$

$y^3 + 27 + 3 \times y \times 3\ (y + 3) - y^3 = 177$

$9y(y + 3) = 117 - 27$

$9y(y + 3) = 90$

$y(y + 3) = 10$

$y \times (y + 3) = 2 \times 5$

so $y = 2$

then $x = 2 + 3 = 5$

Sum $= x + y = 7$

87. How many four digit numbers can be formed using 7,5,0,2 only once in a number ?

(A) 4 (B) 12 (C) 9 (D) 18

Ans. (D)

Sol. Total no. of 4 digit no's are $4 \times 3 \times 2 \times 1 = 24$

But numbers that starts from 0 are not four digit no.

There are 6 no. that starts with zero as 0752, 0725, 0572, 0527, 0257, 0257

So ans is $24 - 6 = 18$

88. The greatest four digit even number that can be formed using the digits 7, 0, 6, 5 without repeating the digit is

(A) 6570 (B) 7560 (C) 7650 (D) 7065

Ans. (C)

Sol. The greatest four digit no is 7650.

89. A person covers half of his journey at 30 km/hr and the remaining half at 20 km/hr. The average speed for the whole journey is :

(A) 24 km/hr (B) 28 km/hr (C) 32 km/hr (D) none of these

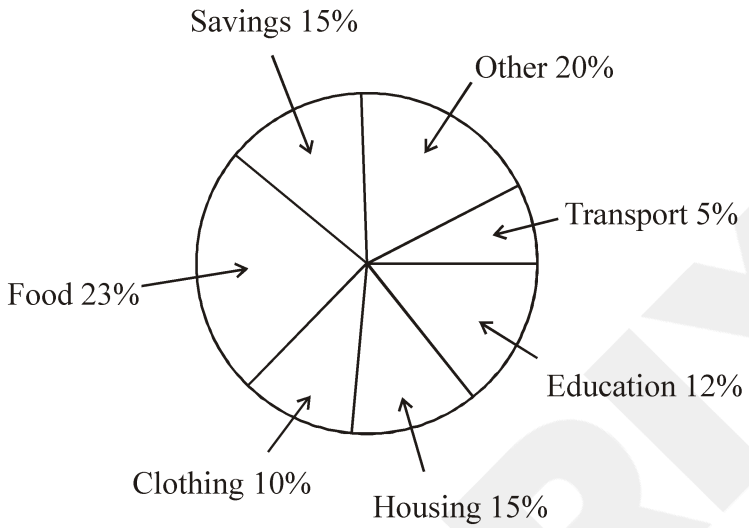
Ans. (A)

Sol. $\text{Avg. speed} = \dfrac{\text{total distance}}{\text{total five}}$

Let total distance is 2x.

$$\text{So avg. speed} = \frac{2x}{\frac{x}{30} + \frac{x}{20}} = \frac{2 \times 60}{2 + 3} = \frac{120}{5} = 24\,\text{km / hr}$$

Direction (90–94) : The pie-chart represented below shows the spending by a family on various items during the year 1999. Study the pie-chart carefully and answer the following questions :



90. If the total amount spent during the year 1999 was Rs. 46,000, then the amount (in rupees) spent on food was

(A) 2000 (B) 10,580 (C) 23,000 (D) 2300

Ans. (B)

Sol. Given total amount spent during the year 1999 = Rs. 46000

Amount spent on food = $\frac{23}{100} \times 46000$ = Rs. 1058

91. If the total amount spent during the year 1999 was Rs. 46,000 then how much money (in rupees) was spent on clothing and housing together ?

(A) 11,500 (B) 1,150 (C) 10,000 (D) 15,000

Ans. (A)

Sol. Amount spent on clothing and housing

$= \frac{(10+15)}{100} \times 46000$

$= \frac{25}{100} \times 46000$

$= 11500$

92. If the total expenditure of the family for the year 1999 was Rs. 46000, then the saving (in rupees) of the family was :

(A) 1,500 (B) 15,000 (C) 6,900 (D) 3,067

Ans. (C)

Sol. Saving of family = $\frac{15}{100} \times 46000$ = Rs. 6900

93. According to the pie-charg, the maximum amount was spent on which item ?

(A) Food (B) Housing (C) Clothing (D) Others

Ans. (A)

Sol. According to pie-chart, the maximum amount was spent on food = 23%

94. The ratio of the total amount of money spent on housing to the total amount of money spent on education was

(A) 5 : 2 (B) 2 : 5 (C) 4 : 5 (D) 5 : 4

Ans. (D)

Sol. $= \frac{\text{housing amount}}{\text{eduation amount}} = \frac{15}{12} = \frac{5}{4}$

So ratio is 5 : 4

95. The sum of three numbers is 98. If the ratio between first and second be 2 : 3 and that between second and third be 5 : 8, then the second number is :

(A) 30 (B) 20 (C) 58 (D) 48

Ans. (A)

Sol. Give sum of three numbers = 98

let the numbers are a, b, c

a : b

(2 : 3) × 5

b : c

3 × (5 : 8)

then a : b : c

10 : 15 : 24 $\Rightarrow$ a=10x, b=15x, c=24x

According to question

$10x + 15x + 24x = 98 \Rightarrow 49x = 98 \Rightarrow x = \frac{98}{49} \Rightarrow x = 2$

$\therefore$ second number is = 15 x = 15 × 2 = 30

Direction (96 – 100) : In each of the following questions, there is a certain relationship between two given numbers on left side of (: :) and one number is given on the right side of (: :) while another number is to be found from the given alternatives, having the same relationship with the number as the numbers of the given pair bear. Choose the correct alternative

96. 21 : 3 : : 574 : ?

(A) 23 (B) 82 (C) 97 (D) 113

Ans. (B)

Sol. $21 : 3 :: 574 : ?$ ($21 \div 7$, $574 \div 7$) $\Rightarrow \frac{574}{7} = 82$

97. 42 : 20 : : 64 : ?

(A) 31 (B) 32 (C) 33 (D) 34

Ans. (A)

Sol. $42 : 20 :: 64 : ?$ ($(42 \div 2) - 1$, $(64 \div 2) - 1$) $= \frac{64}{2} - 1 = 31$

98. 3 : 11 : : 7 : ?

(A) 22 (B) 29 (C) 18 (D) 51

Ans. (D)

Sol. $3 : 11 :: 7 : ?$ ($3^2 + 2$, $7^2 + 2$) $= 7^2 + 2 = 49 + 2 = 51$

99. 42 : 56 : : 72 : ?

(A) 81 (B) 90 (C) 92 (D) 100

Ans. (B)

Sol. $42 : 56 :: 72 : ? \Rightarrow 42 = 6^2 + 6 \Rightarrow 56 = 7^2 + 7$

thus $72 = 8^2 + 8 \Rightarrow 90 = 9^2 + 9$

100. 9 : 80 : : 100 : ?

(A) 901 (B) 1009 (C) 9889 (D) 9999

Ans. (D)

Sol. $9 : 80 :: 100 : ?$ ($9^2 - 1$, $100^2 - 1$) $\Rightarrow 100^2 - 1 = 10000 - 1 = 9999$