

**NATIONAL TALENT SEARCH EXAMINATION (NTSE-2021) STAGE-1****STATE : RAJASTHAN****PAPER : MAT****Date: 13/12/2020****Max. Marks: 100****SOLUTIONS****Time allowed: 120 mins**

Instruction : In each of the Questions Nos. 1 to 8 a letter series is given with one term missing shown by questions mark (?). This term is one of the four alternatives given under it. Find the correct alternative.

1. R, V, A, G, N, ?

(1) U

(2) V

(3) W

(4) X

Ans. (2)**Sol.** Difference between the term : + 4, + 5, + 6, + 7, + 8.

2. AC, FH, KM, PR, ?

(1) UX

(2) TV

(3) UW

(4) VW

Ans. (3)**Sol.** Difference between the term : + 5, + 5, + 5

3. NZ, OY, PX, QW, RV, ?

(1) FS

(2) UF

(3) TU

(4) SU

Ans. (4)**Sol.** Difference between the term : + 1 and -1

4. AEI, EIO, IOU, OUA, _____

(1) UXB

(2) UAE

(3) MRQ

(4) QVR

Ans. (2)**Sol.** Pattern based on vowels cyclicity.

5. ABZ, DFX, GJV, JNT, ?

(1) MRR

(2) QRQ

(3) MRQ

(4) OVR

Ans. (1)**Sol.** Difference between the term : + 3; + 4 & -2.

6. COVIDNINETEEN, VIDNINETEENCO, DNINETEENCOVI, ?

(1) IDNINETEENCOV

(2) NINETEENCOVID

(3) INETEENCOVIDI

(4) INETEENCOVIDN

Ans. (4)**Sol.** First two letters written in last to get the next term.

7. RADIUS, RADSIU, RADSUI, RADUIS, ?

(1) RASDIU

(2) RDAIUS

(3) RADUSI

(4) RAIDUS

Ans. (3)**Sol.** RADIUS, RADSIU, RADSUI, RADUIS, RADUSI

1 2 3 3 1 2 3 2 1 2 1 3 2 3 1

8. H2J, K3N, O4S, ?

(1) T5Y

(2) T5Z

(3) T5X

(4) T5A

Ans. (1)

Sol. Difference between 1st term : +3, +4, +5.

Difference between 2nd term : +1, +1, +1.

Difference between 3rd term : +4, +5, +6.

Instruction: In each of the Question Nos. 9 to 16 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. 2, 3, 5, 8, 13, ?, 34

(1) 23

(2) 21

(3) 20

(4) 22

Ans. (2)

Sol. Fibonacci series

$2 + 3 = 5$; $3 + 5 = 8$;

$5 + 8 = 13$; $8 + 13 = 21$;

$13 + 21 = 34$

10. 3, 8, 15, 24, 35, ?

(1) 52

(2) 50

(3) 48

(4) 46

Ans. (3)

Sol. All term is the form of $(n^2 - 1)$.

11. 8, 24, 28, 140, 146, 1022, 1030, ?

(1) 1040

(2) 8240

(3) 10300

(4) 9270

Ans. (4)

Sol. Pattern is : $\times 3, +4, \times 5, +6, \times 7, +8, \times 9$.

12. 2, 9, 3, 28, 4, 65, 5, ?

(1) 137

(2) 126

(3) 118

(4) 115

Ans. (2)

Sol. Alternate two series.

In one series : +1, +1, +1 {Difference}

In other series : $2^3 + 1, 3^3 + 1, 4^3 + 1$

13. 4, 17, 290, ?

(1) 84100

(2) 84101

(3) 84102

(4) 84103

Ans. (2)

Sol. $4^2 + 1 = 17$; $17^2 + 1 = 290$; $290^2 + 1 = 84101$.

14. 3, 3, 4.5, 9, 22.5, ?

(1) 27.3

(2) 48

(3) 55

(4) 67.5

Ans. (4)

Sol. Pattern is : $\times 1, \times 1.5, \times 2, \times 2.5, \times 3$.

15. 4, 5, 12, 39, 160, ?

(1) 225

(2) 695

(3) 805

(4) 790

Ans. (3)

Sol. Pattern is : $\times 1 + 1, \times 2 + 2, \times 3 + 3, \times 4 + 4, \times 5 + 5, \dots$

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16. 2, 3, 7, 16, 32, ?

(1) 57

(2) 39

(3) 56

(4) 55

Ans. (1)

Sol. Pattern is : + 1, + 4, + 9, + 16, + 25.

Instruction: Question Nos. 17 to 19 has a statements. and two conclusions I and II. You have to assume the given statements as true even it seem to vary from commonly known facts. Read all the conclusions carefully and decide which of the given conclusions logically follow(s) the given statement even disregarding, commonly known facts.

17. **Statement :** Unemployment is one of the main reason for the poverty of the country.

Conclusions: (I) To end poverty, it is required to create employment opportunities.

(II) All the people in the country are unemployed.

(1) Only conclusion I follows.

(2) Only conclusion II follows.

(3) Both conclusions I and II follows.

(4) Neither conclusion I nor II follows.

Ans. (1)

Sol. Clearly only conclusion I follows.

18. **Statement :** Morning walk is good for health.

Conclusions : (I) All healthy people go for morning walk.

(II) Evening walk is harmful.

(1) Only conclusion I follows.

(2) Only conclusion II follows.

(3) Both conclusions I and II follows.

(4) Neither conclusion I nor II follows.

Ans. (4)

Sol. Clearly, neither conclusion I nor II follows.

19. **Statement :** Animal live on Oxygen.

Conclusions : (I) Plants do not live on Oxygen.

(II) Anything that needs Oxygen is bound to be animal.

(1) Only conclusion I follows.

(2) Only conclusion II follows.

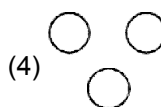
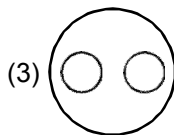
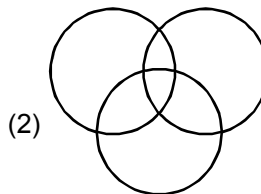
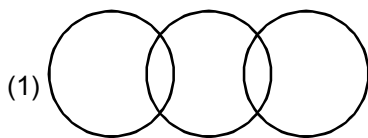
(3) Both conclusions I and II follows.

(4) Neither conclusion I nor II follows.

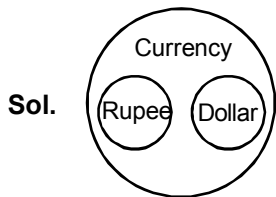
Ans. (4)

Sol. Clearly, neither conclusion I nor II follows.

20. Which one of the following Venn-diagram correctly represents the relation between currency, Rupee and Dollar?



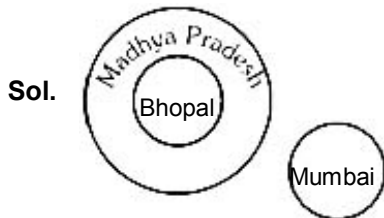
Ans. (3)



21. Which one of the following Venn-diagrams correctly represents the relation between Mumbai, Madhya Pradesh and Bhopal?



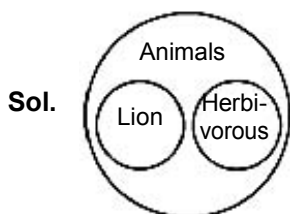
Ans. (3)



22. Which one of the following Venn-diagrams correctly represents the relation between Herbivorous, Lions and Animals?



Ans. (1)



23. In a coded language, ONLINE is written as LNOENI and SILENT is written as LISTNE; then in the same coded language, LISTEN will be written as.

- (1) ILSNET (2) SILENT (3) SILNET (4) SILETN

Ans. (3)

Sol. Word divide into 2 half & then reverse.

24. In a coded language, AVOID is written as 73564 and CHINA is written as 28617; then in the same coded language, COVID will be written as.

- (1) 53246 (2) 25364 (3) 25346 (4) 25634

Ans. (2)

Sol. Letters corresponding digit is code.

Direction (Q.25 to Q.27) : Read the following informations carefully and answer question number 25 to 27 based upon it.

In a coded language, 461 means WHERE ARE YOU; 169 means 'YOU ARE GOOD' and 8652 means 'EXAMS ARE NOT BAD'.

25. What is the code for 'NOT'?

- (1) 6 (2) 9 (3) 5 (4) 1

Ans. (3)

Sol. Words corresponding digit is code.

26. What is the code for 'GOOD'?

- (1) 9 (2) 4 (3) 6 (4) 1

Ans. (1)

Sol. Words corresponding digit is code.

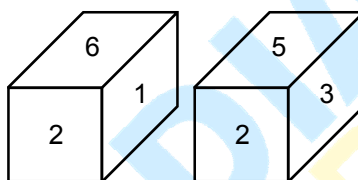
27. How will 'WHERE ARE GOOD EXAMS' will be written in coded language?

- (1) 1654 (2) 4619 (3) 1945 (4) 4698

Ans. (4)

Sol. Words corresponding digit is code.

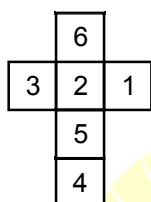
28. The two positions of a single die are given below. Which digit will be at the face opposite to the face having digit 2.



- (1) 3 (2) 4 (3) 5 (4) 6

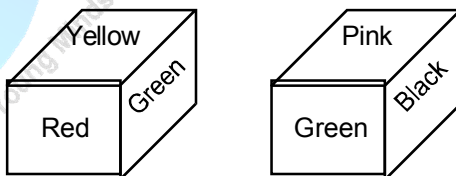
Ans. (2)

Sol.



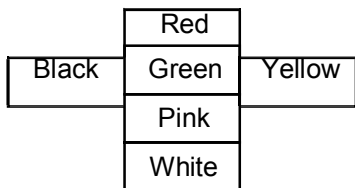
Clearly, opposite to 2 is 4.

29. The two position of a single cube are shown below. The six faces of this cube are coloured with Green, Yellow, Red, Black, Pink and White. If Green coloured face is at top then what will be the colour at bottom's face?



- (1) White (2) Green (3) Yellow (4) Red

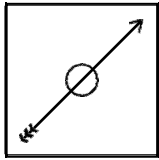
Ans. (1)



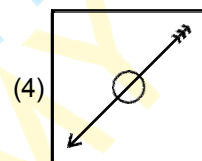
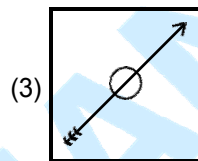
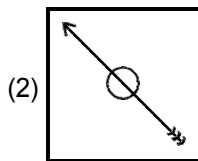
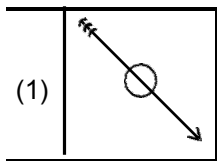
Sol. Clearly, Green is opposite to white.

Instruction: In Question numbers 30 to 33, find the correct mirror image of the given figure, when mirror is placed on right side of the figure.

30. Question Image



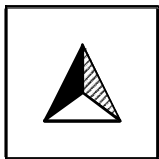
Answer Image



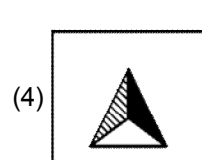
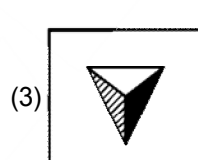
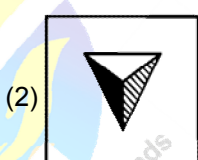
Ans. (2)

Sol. By observation

31. Question Image



Answer Image



Ans. (4)

Sol. By observation

32. VIRUS

(1) VIRUS

(2) VIRUS

(3) VIRUS

(4) VIRUS

Ans. (3)

Sol. By observation

33. 53768

(1) 82735

(2) 82735

(3) 82735

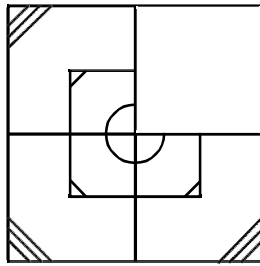
(4) 82735

Ans. (4)

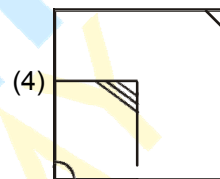
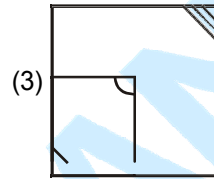
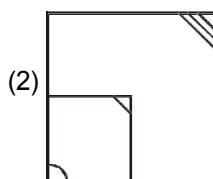
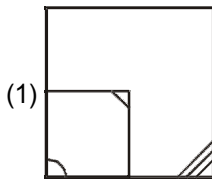
Sol. By observation

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

Question figure



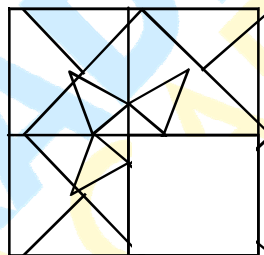
Answer figure



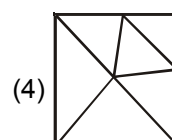
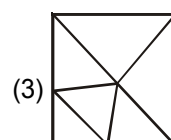
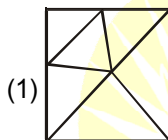
Ans. (2)

Sol. By observation

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



Answer figure



Ans. (1)

Sol. By observation

36. It was Tuesday on 24th March, 2020 then what was the day on 24th August, 2020,

(1) Wednesday

(2) Tuesday

(3) Monday

(4) Sunday

Ans. (3)

Sol. March = 7 odd days

April = 2 odd days

May = 3 odd days

June = 2 odd days

July = 3 odd days

August = 24 days

→ 41 Days

So, total odd days = 6.

Req. day = Tuesday + 6 = Monday.

37. How many numbers from 10 to 200 are there which are divisible by 2 as well 7?

- (1) 13 (2) 14 (3) 15 (4) 16

Ans. (2)

Sol. If any number divisible by 2 & 7 then it should be divisible by 14.

So, from 10 to 200 divisible by numbers.

$$= \frac{200}{14} = 14.28.$$

? Total numbers = 14

Instruction : In each of the Question numbers 38 to 43, three alternatives are alike in a certain way but the rest one is different. Select the odd one.

38. (1) Chalk (2) Pen (3) Pencil (4) Map

Ans. (4)

Sol. Clearly, all are used to write except Map.

39. (1) Taxi (2) Bus (3) Car (4) Tanker

Ans. (4)

Sol. Clearly, all are mode of transport except Tanker.

40. (1) June (2) August (3) April (4) November

Ans. (2)

Sol. Clearly, all months have 30 days except August.

41. (1) Africa (2) Europe (3) Australia (4) England

Ans. (4)

Sol. Clearly, All are continents except England.

42. (1) Hand (2) Leg (3) Ear (4) Neck

Ans. (4)

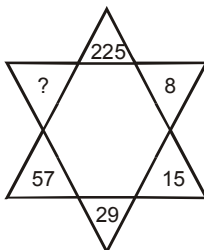
Sol. Clearly, Neck is different from others as all are in pairs other than Neck.

43. (1) Cone (2) Traingle (3) Rectangle (4) Circle

Ans. (1)

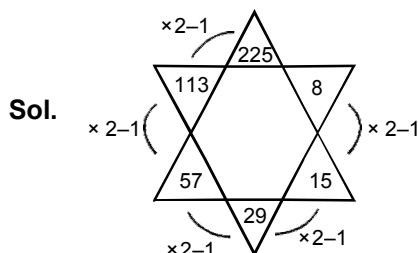
Sol. Clearly, all are figure except cone are in 2D and cone is 3D.

44. Identify the missing term (?) in the following figure.



- (1) 114 (2) 113 (3) 123 (4) 124

Ans. (2)



45. Identify the missing term (?) in the following table.

11	12	13
14	15	16
2	3	4
39	57	?

(1) 87

(2) 85

(3) 77

(4) 75

Ans. (3, 4)

Sol. $14 \times 2 + 11 = 39$

$15 \times 3 + 12 = 57$

$16 \times 4 + 13 = 77$; so answer is option (3)

And in row ends number sum divide by 2 which will give you option (4)

46. Ishant is taller than Sanjay, Ashok is taller than Ishant, Sachin is not as taller as Ashok but taller than Ishant. Who is shortest in height?

(1) Sanjay

(2) Sachin

(3) Ishant

(4) Can't be determined

Ans. (1)

Sol. Ashok > Sachin > Ishant > Sanjay.

Clearly Sanjay is shortest.

47. In a class of 39 students, Mukesh's rank is 7 more than Gautam's rank. If Gautam's rank from end is 17th, then what will be the rank of Mukesh from beginning?

(1) 13th

(2) 14th

(3) 15th

(4) 16th

Ans. (4)

Sol. $[39 - (17 + 7)] + 1 = 16$.

48. From 14 December, 2020, morning 4 O' clock to 15 December, 2020, morning 4 O' clock. How many times, the minute hand & hour hand of a clock will overlap.

(1) 21

(2) 22

(3) 23

(4) 24

Ans. (2)

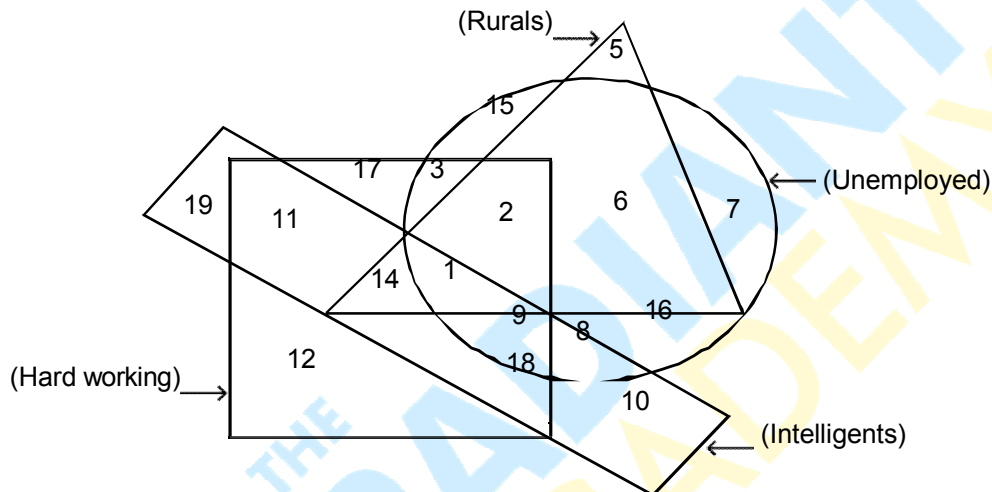
Sol. Minute hands & Hr hand overlap 22 times in 24 hrs.

Questions (49-53)

Instruction : 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) Circle represent unemployed
- (ii) Square represent Hardworking
- (iii) Triangle represent Rurals
- (iv) Rectangle represents intelligents.



49. The rurals which are Hard working and intelligent but not unemployed are represent in the diagram by.
- (1) 14 (2) 1 (3) 9 (4) 8

Ans. (1)

Sol. By observation

50. The Rurals, which are neither Hard-working nor Intelligent but unemployed are represented by
- (1) 1 (2) 2 (3) 3 (4) 6

Ans. (4)

Sol. By observation

- 51.** The unemployed, which are intelligent but neither Rurals nor Hard working are represented by
- (1) 1 (2) 8 (3) 9 (4) 11

Ans. (2)

Sol. By observation

- 52.** Those who are Rurals, Hard-working and unemployed and also intelligent, are represented by
- | | | | |
|--------|-------|-------|-------|
| (1) 14 | (2) 9 | (3) 8 | (4) 1 |
|--------|-------|-------|-------|

Ans. (4)

Sol. By observation

- 53.** Those persons who are neither rural, nor unemployed and nor intelligent but Hard working, are represented by
 (1) 5 and 7 (2) 12 and 17 (3) 10 and 19 (4) 15 and 16

Ans. (2)

Sol. By observation

54. As clay is related to pottery in the same way gold is related to which of the following.

- (1) Woman (2) Gold Smith (3) Ornaments (4) Metal

Ans. (3)

Sol. Clay used to make pottery in same way gold used to make Ornaments.

55. As bird is related to kite, in the same way fish is related to which of the following.

- (1) Crow (2) Submarine (3) Boy (4) Thread

Ans. (2)

Sol. Bird, Kite → Sky, Fish, Submarine → Water

56. As 'gram' is related to 'mass' in the same way, 'Centimeter is related to

- (1) Area (2) Volume (3) Density (4) Length

Ans. (4)

Sol. Gram → Mass

Centimeter → Length

Questions (57-61)

Instruction : Study the informations given below carefully and answer the questions based on it.

All the faces of a solid cube are coloured with red colour and then cut it into 64 small equal cubes

57. How many cubes are such with only one face is coloured?

- (1) 12 (2) 24 (3) 30 (4) 36

Ans. (2)

Sol. In the center of each face.

58. How many cubes are such with two opposite faces are red coloured?

- (1) 0 (2) 4 (3) 6 (4) 8

Ans. (1)

Sol. No such cube.

59. How many cubes are such with two adjacent faces are red coloured and the remaining faces are not coloured?

- (1) 8 (2) 12 (3) 16 (4) 24

Ans. (4)

Sol. Two in center of each edge.

60. How many cubes are such with three faces are red coloured?

- (1) 0 (2) 6 (3) 8 (4) 12

Ans. (3)

Sol. Cube at each corner.

61. How many cubes are such with any of the face is not coloured?

- (1) 6 (2) 8 (3) 10 (4) 12

Ans. (2)

Sol. $(n - 2)^3 = (4 - 2)^3 = 8$

62. In numbers 5 8 1 3 2 7 6 4, how many digits are such with at the same distance from the beginning as if arranged in descending order?

- (1) Three (2) Two (3) One (4) None of these

Ans. (4)

Sol. $\left\{ \begin{array}{l} 5 \ 8 \ 1 \ 3 \ 2 \ 7 \ 6 \ 4 \\ 8 \ 7 \ 6 \ 5 \ 4 \ 3 \ 2 \ 1 \end{array} \right.$

Direction (Q. 63-65) : Each based upon the following five, three-digit numbers.

386, 752, 961, 573, 839

63. If unit place and hundreds place digit of every number is interchanged then what will be the sum of unit place digit and Tens place digit of greatest number?

(1) 7

(2) 11

(3) 12

(4) 14

Ans. (2)

Sol. New number

683, 257, 169, 375, 938

So largest + 938

So $3 + 8 = 11$

64. If unit place digit and Tens place digit of every number is interchanged then what will be the second greatest number.

(1) 893

(2) 863

(3) 961

(4) 725

Ans. (1)

Sol. New number

368, 725, 916, 537, 893

65. If the digits of every numbers are rearranged in such a way that it form smallest possible number by the digits then what will be the biggest number out of them?

(1) 368

(2) 527

(3) 691

(4) 389

Ans. (4)

Sol. New numbers

368, 257, 169, 357, 389

66. In the arithmetic expression given below, if the digit 4 and 3 are interchanged then what will be the solution?

$$4 \times 2 + 8 - 3 \div 2$$

(1) 10

(2) $\frac{10}{3}$

(3) 18

(4) 12

Ans. (4)

Sol. $3 \times 2 + 8 - 4 \div 2$

$6 + 8 - 2$

12

67. In the arithmetic expression given below, if the sign \times and \div are interchanged the what will be the solution?

$$8 \times 3 - 2 + 3 \div 3$$

(1) $\frac{29}{3}$

(2) 9

(3) 23

(4) $\frac{23}{3}$

Ans. (1)

Sol. $8 \div 3 - 2 + 3 \times 3$

$\frac{8}{3} - 2 + 9$

$$\frac{8 - 6 + 27}{3} = \frac{29}{3}$$

68. After interchanging the sign + and \div and also interchanging the digits 2 and 3, which of the following is given with correct solution?

(1) $4 \times 3 + 8 - 3 \div 2 = 17$

(2) $4 + 3 \times 8 - 3 \div 2 = 17$

(3) $4 + 3 \times 8 \div 2 \times 3 = 17$

(4) $4 + 3 \times 8 + 2 - 3 = 17$

Ans. (2)

Sol. (1) $4 \times 2 \div 8 - 2 + 3$

(2) $4 \div 2 \times 8 - 2 + 3$

(3) $4 \div 2 \times 8 + 3 \times 2$

(4) $4 \div 2 \times 8 + 3 - 2$

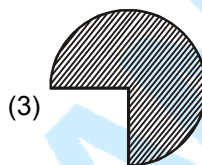
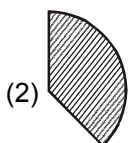
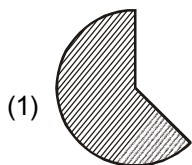
$1 + 1 = 2 \sigma 17$

$2 \times 8 + 1 = 17$

$16 + 6 = 22 \sigma 27$

$\frac{16}{3} - 2 \sigma 17$

69. If 50% books in a library are in English language and $\frac{7}{10}$ of the rest in Hindi language which of the following shaded part approximately represent books in Hindi language.



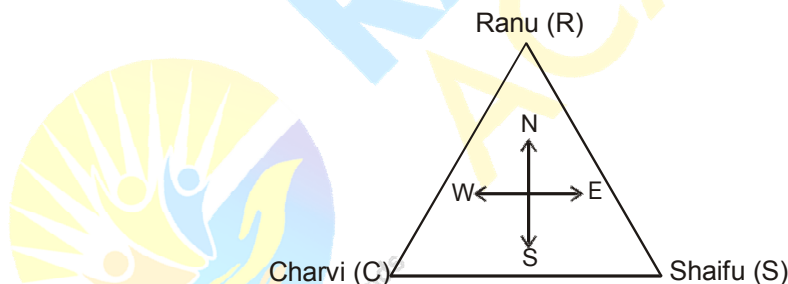
Ans. (2)

Sol. Clearly \rightarrow 50% Represent English

Rest is 50% and $\frac{7}{10}$ is Hindi

So i.e. 35 so clearly.

Direction (Q. 70-72) : Instruction : In an open ground Ranu, Shaifu, and Charvi are standing at the corner of an equilateral triangle. Study the questions 70 to 72 carefully which are based on the following diagram and select the correct answer.



70. From the positions shown in above figure, Ranu, Shaifu and Charvi run along the sides of equilateral triangle in clockwise direction for $\frac{1}{2}$ sides of triangle. Now which of the following statements is true?

(1) Charvi is in West of Shaifu.

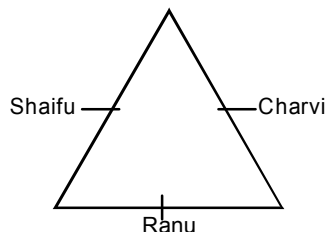
(2) Ranu is in South-West of Charvi.

(3) Ranu is in South-West of Shaifu.

(4) Shaifu is in North-East of Ranu.

Ans. (2)

Sol. New positions will be

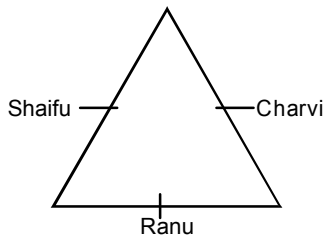


71. From the positions shown in above figure, Ranu, Shaifu and Charvi run along the sides of equilateral triangle in anti-clockwise direction for $\frac{1}{2}$ sides of triangle. Now shaifu is in which direction of Ranu?

(1) In East (2) In South (3) In North-West (4) In North-East

Ans. (3)

Sol. New diagram.

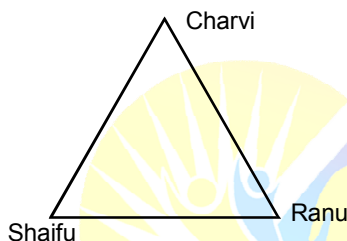


72. From the position shown in above figure, Ranu, Shaifu and Charvi run along the sides of equilateral triangle in clockwise direction for 1 side of triangle. Now Charvi is in which direction of Shaifu?

(1) South-West (2) South-East (3) North-West (4) North-East

Ans. (4)

Sol. New diagram



73. In this question, 'O' means "Greater than", '□' means "Less than", '≡' means "equal to", '♥' means "not equal to". If COA , $A \square B$, $D \equiv B$ and $B \heartsuit C$, then choose the correct option in the following.

(1) $D \square C$ (2) DOC (3) AOC (4) $B \heartsuit D$

Ans. (Bonus)

Sol. $O \rightarrow >$

$\square \rightarrow <$

$\equiv \rightarrow =$

$\heartsuit \rightarrow \neq$

COA , $A \square B$, $D \equiv B$, $B \heartsuit C$

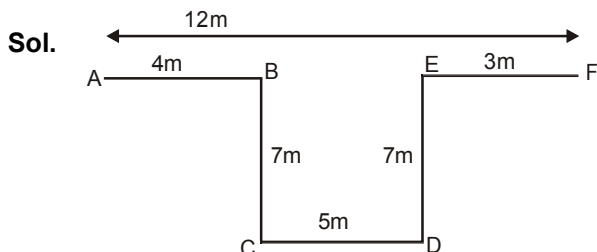
$C > A$, $A < B$, $D = B$, $B \neq C$

options are not available.

74. Darshan walked 4 meters in East, then he turned right and walked 7 meters, then he turned left and walked 5 meters again he turned left and walked 7 meters. Then finally before stopping he turned right and walked 3 meters. How far is Darshan from his initial point?

- (1) 10 meter (2) 11 meter (3) 12 meter (4) 13 meter

Ans. (3)



Direction (Q.75 to Q.80) : The following table shows the record of surgery done in a hospital. This record shows the data from January to July. Study the table carefully and answer the following questions.

Month	Total successful surgery	Total unsuccessful Surgery
January	5	3
February	4	4
March	5	2
April	6	3
May	4	2
June	3	3
July	2	4

75. As per the above table, what is the percentage of successful surgery?

- (1) 32% (2) 29% (3) 58% (4) 21%

Ans. (3)

Sol.

Month	Total successful surgery	Total unsuccessful Surgery
January	5	3
February	4	4
March	5	2
April	6	3
May	4	2
June	3	3
July	2	4
Total	29	21

$$\frac{29}{50} \times 100 = 58 \%$$

76. In which month the percentage of successful surgery was highest in the hospital?

(1) January

(2) April

(3) July

(4) March

Ans. (4)

Sol. January $\rightarrow \frac{5}{8} \times 100 = 62.5\%$

February $\rightarrow \frac{4}{8} \times 100 = 50\%$

March $\rightarrow \frac{5}{7} \times 100 = 71.4\%$

April $\rightarrow \frac{6}{9} \times 100 = 66.6\%$

May $\rightarrow \frac{4}{6} \times 100 = 66.6\%$

June $\rightarrow \frac{3}{6} \times 100 = 50\%$

July $\rightarrow \frac{2}{6} \times 100 = 33.3\%$

77. In which month the percentage of unsuccessful surgery was highest in the hospital?

(1) July

(2) June

(3) February

(4) March

Ans. (1)

Sol. January $\rightarrow \frac{3}{8} \times 100 = 37.5\%$

February $\rightarrow \frac{4}{8} \times 100 = 50\%$

March $\rightarrow \frac{2}{7} \times 100 = 28.5\%$

April $\rightarrow \frac{3}{9} \times 100 = 33.3\%$

May $\rightarrow \frac{2}{6} \times 100 = 33.3\%$

June $\rightarrow \frac{3}{6} \times 100 = 50\%$

July $\rightarrow \frac{4}{6} \times 100 = 66.6\%$

78. If a and b are natural numbers. If $a + b = 2020$ then what will be the value of $(-1)^a + (-1)^b$?
 (1) 1 OR -1 (2) 2020 OR -2020 (3) 1010 OR -1010 (4) 2 OR -2

Ans. (4)

Sol. $a + b = 2020$

So a can be even or odd and b can be even or odd.

But from a and b if a is even then b is also even in the same way if a is odd then b is also odd. $(-1)^{\text{even}} + (-1)^{\text{even}} = 2$

$$(-1)^{\text{odd}} + (-1)^{\text{odd}} = -2$$

79. How many integers are in between 1 and 100 which satisfying all the following conditions?

- (i) After divided by 3, remainder is 1
 (ii) After divided by 5, remainder is 1
 (iii) After divided by 7, remainder is 0

- (1) 0 (2) 1 (3) 2 (4) 3

Ans. (2)

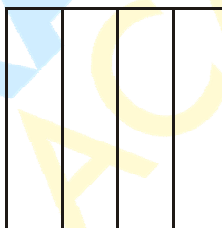
Sol. They should be perfectly divided by 7

So 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98

Now number should be $5n + 1$ so we left with 21, 56, 91

Now it also be $3K + 1$ so clearly 91.

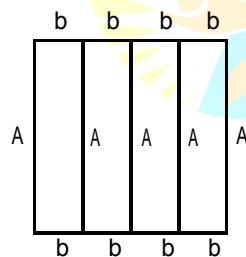
80. A square is divided into four identical rectangles. The perimeter of each of these rectangles is 20 cm. What is the perimeter of the square?



- (1) 80 cm (2) 50 cm (3) 48 cm (4) 32 cm

Ans. (4)

Sol.



Given $2A + 2b = 20$

$A + b = 10$ (1)

and $A = 4b$

So from equation (1)

$4b + b = 10$

$b = 2$

81. What is the difference between the biggest 3-digit number having 8 as tens place and divisible by 4 and smallest 3 digit number having 8 as tens place and divisible by 4?

(1) 888

(2) 808

(3) 708

(4) 788

Ans. (2)

Sol. $988 - 180 = 808$

Questions (82-86) :

Instruction : In each of the following questions, there is a certain relationship between two given numbers on left side of sign ($:$) and one number is given on the right side of sign ($::$) 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 alternatives.

82. $20 : 11 :: 102 : ?$

(1) 49

(2) 52

(3) 61

(4) 96

Ans. (2)

Sol. $\frac{20}{2} + 1 = 11$

So $\frac{102}{2} + 1 \rightarrow 52$

83. $6 : 35 :: 7 : ?$

(1) 48

(2) 42

(3) 34

(4) 13

Ans. (1)

Sol. $6^2 - 1 = 35$

So $7^2 - 1 = 48$

84. $9 : 162 :: 8 : ?$

(1) 96

(2) 112

(3) 128

(4) 162

Ans. (3)

Sol. $9^2 \times 2 = 162$

$8^2 \times 2 = 128$

85. $64 : 100 :: 144 : ?$

(1) 121

(2) 169

(3) 180

(4) 196

Ans. (4)

Sol. $8^2 \rightarrow 64$

$(8 + 2)^2 \rightarrow 100$

$12^2 \rightarrow 144$

$(12 + 2)^2 \rightarrow 196$

86. $0.01 : 0.0001 :: 0.05 : ?$

(1) 0.00025

(2) 0.0025

(3) 0.025

(4) 0.25

Ans. (2)

Sol. $(0.01)^2 = 0.0001$

$(0.05)^2 = 0.0025$

87. Arrange the following in a meaningful sequence :

- (1) Crop (2) Root (3) Stem (4) Seed
(5) Flower
(1) 4, 1, 2, 3, 5 (2) 2, 4, 3, 5, 1 (3) 2, 3, 4, 5, 1 (4) 4, 2, 3, 5, 1

Ans. (4)

Sol. Seed, Root, Stem, Flower, Crop

4 2 3 5 1

88. Arrange the following in meaningful sequence :

- (1) Rain (2) Cloud (3) Ocean (4) River
(5) Monsoon
(1) 5, 2, 1, 4, 3 (2) 3, 1, 2, 4, 5 (3) 1, 5, 2, 4, 5 (4) 2, 5, 1, 4, 3

Ans. (1)

Sol. Monsoon, Cloud, Rain, River, Ocean

5 2 1 4 3

Questions (89-92) :

Instruction : Read the information given below and answer the question numbers 89 to 92 based on it.

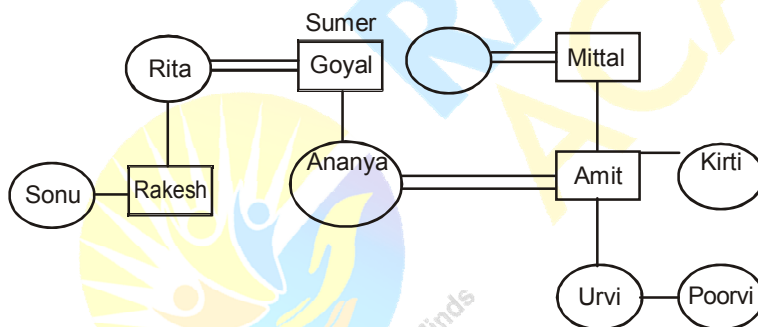
Kriti and Amit are two children of Smt and Shri Mittal. Amit, married to Ananya, who is daughter of Smt. Goyal. Shri Goyal had married to Rita. Sonu and Rakesh are children of Sumer and Rita. Urvi and Poorvi are daughters of Ananya and Amit.

89. What is the surname of Rakesh?

- (1) Goyal (2) Mittal (3) Amit (4) Kriti

Ans. (1)

Sol.



Rakesh is son of Rita & Sumer Goyal.

So Surname is Goyal.

90. What is the relation of Sumer with Poorvi?

- (1) Brother (2) Uncle (3) Maternal Grand Father (4) Father

Ans. (3)

Sol. Sumer is father of Ananya who is mother of Poorvi

So Sumer is maternal grand father of Poorvi.

91. What is the relation of Urvi with Kirti?

- (1) Sister (2) Niece (3) Aunt (4) Daughter

Ans. (2)

Sol. Urvi daughter of Amit & Kirti is sister of Amit

So Urvi is niece of Kirti.

92. What is the relation of Sonu with Shri Goyal?

- (1) Sister (2) Brother (3) Son/Daughter (4) Father

Ans. (3)

Sol. Sonu is son of sumer goyal.

Questions (93-95) :

Instruction : Read the sequence given below and answer question number 93 to 95.

7, 6, 3, 2, 3, 5, 4, 3, 5, 2, 7, 6, 4, 5, 2, 3, 6, 2, 7, 5, 2, 5, 2, 3, 6, 5, 2, 6, 3, 7, 4, 2, 5

93. How many times 5 is followed by 2 but 4 does not occur just before it?

- (1) 1 (2) 2 (3) 4 (4) 5

Ans. (3)

Sol. 7, 6, 3, 2, 3, 5, 4, 3, 5, 2, 7, 6, 4, 5, 2, 3, 6, 2, 7, 5, 2, 5, 2, 3, 6, 5, 2, 6, 3, 7, 4, 2, 5

94. How many times 2 is followed by odd numbers?

- (1) 4 (2) 5 (3) 6 (4) 7

Ans. (4)

Sol. 7, 6, 3, 2, 3, 5, 4, 3, 5, 2, 7, 6, 4, 5, 2, 3, 6, 2, 7, 5, 2, 5, 2, 3, 6, 5, 2, 6, 3, 7, 4, 2, 5

95. How many times has number 5 been used just before or after 4?

- (1) 1 (2) 2 (3) 3 (4) 5

Ans. (2)

Sol. 7, 6, 3, 2, 3, 5, 4, 3, 5, 2, 7, 6, 4, 5, 2, 3, 6, 2, 7, 5, 2, 5, 2, 3, 6, 5, 2, 6, 3, 7, 4, 2, 5

96. What will be angle between minute hand and hour hand of a watch at 12:30?

- (1) 180° (2) 150° (3) 175° (4) 165°

Ans. (4)

Sol. $\left| \frac{11}{2} \times \text{minute} - 30 \times \text{hours} \right|$

as 12 hours means 0.

$$\left| \frac{11}{2} \times 30 - 30 \times 0 \right| = 165^\circ$$

Questions (97-100) :

Instruction : Read the information given below carefully and answer the questions that follow:

A, B, C, D, E, F and G are seven students of a school, who are studying in seven different Classes V, VI, VII, VIII, IX, X and XI. Everyone of them likes a particular subject viz. English, Hindi, Physics, Chemistry, Mathematics, History and Geography. Students, Classes and subjects can always be in different order as given.

B likes History and does not study in Class VII. The one who likes English studies in Class IX. The one who studies in Class V, likes Chemistry. F likes Physics. C is studying in Class VI and doesn't like Geography. E is studying in Class X and likes Mathematics. D likes Chemistry. G doesn't like English and G is not in Class VII or VIII. F is not in Class VII.

97. F is in which Class?

- (1) VII (2) IX (3) XI (4) Data inadequate

Ans. (1)

Sol. B → History → VIII

A → English → IX

D → Chemistry → V

F → Physics → VII

C → Hindi → VI

E → Mathematics → X

G → Geography → XI

98. G is in which Class?

(1) VI

(2) VII

(3) XI

(4) IX

Ans. (3)

Sol. B → History → VIII

A → English → IX

D → Chemistry → V

F → Physics → VII

C → Hindi → VI

E → Mathematics → X

G → Geography → XI

99. Which subject does A like?

(1) Hindi

(2) Geography

(3) English

(4) Chemistry

Ans. (3)

Sol. B → History → VIII

A → English → IX

D → Chemistry → V

F → Physics → VII

C → Hindi → VI

E → Mathematics → X

G → Geography → XI

100. Who studies in Class - 8?

(1) B

(2) C

(3) A

(4) E

Ans. (1)

Sol. B → History → VIII

A → English → IX

D → Chemistry → V

F → Physics → VII

C → Hindi → VI

E → Mathematics → X

G → Geography → XI