

Date : 17/11/2019



Test Booklet Code

M1

Maharashtra

Regd. Office : Aakash Tower, 8, Pusa Road, New Delhi-110005 | Ph.: 011-47623456

# Questions & Answers

for

## NTSE (Stage-I) 2019-20

### INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you answer the questions.

1. Answer are to be bubbled only on the separate carbonless answer-sheet provided to you. After examination detach the carbonless copy from original OMR & keep carbonless copy with you till the declaration of result.
2. Please write your Centre Code & Seat No. very clearly (only one digit in one block) on question paper, Before writing your seat no. ascertained it with Hall ticket. Please see that no block is left blank or unfilled.

Example :

CENTRE CODE	2	1	0	2	
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SEAT NO.	3	9	2	0	2	1	0	2	1	2	3
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3. Please ensure that you have received Mental Ability Test answer sheet.
4. Total number of questions are 200 (100 Q. MAT & 100 Q. SAT) for this paper. All questions carry one mark each.
5. All questions are compulsory.
6. For each question there are four options given in question paper. Check for the correct answer and bubble correct option from four circles given in answer sheet by Black/Blue pen. Please do not write any answers on question papers.
7. Start answering from first question one after the other till last question.
8. If you do not know the answer of any question, do not spend much time on it and pass on to the next one. Time permitting you can come back to the questions which you have left in the first instance and try them again.
9. Utilize the allotted time for solving the questions in best possible way. The rough work is to be done in the box given under each page.
10. Do not write anything except Centre Code, Seat No. and rough work anywhere in this booklet.

**PART-I : MENTAL ABILITY TEST (MAT)**

**Q.1 to 3 : Direction** In the following questions a specific group of numbers is given. From the given alternatives. Find out the correct alternative that matches the given group.

1. 150 576252  
 (1) 393 (2) 466  
 (3) 80 (4) 182

**Answer (1)**

2. 132736 350  
 (1) 223 (2) 72  
 (3) 505 (4) 993

**Answer (3)**

3. 193 454265  
 (1) 572 (2) 823  
 (3) 734 (4) 367

**Answer (2)**

**Q.4 and 5 : Direction** Find the odd term.

4. (1) DUFW (2) HQJS  
 (3) JOLQ (4) AWCZ

**Answer (4)**

5. (1) AEVZ (2) FJQU  
 (3) CQTX (4) JMOS

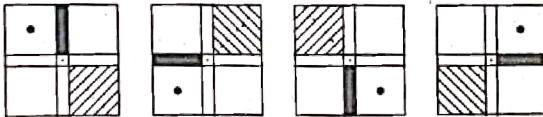
**Answer (3)**

6. ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 From the above alphabets which word will be formed from the given alternatives if the meaningful word formed by the 5<sup>th</sup> and 10<sup>th</sup> letter from the right and 1<sup>st</sup> and 5<sup>th</sup> letter from the left is written in the reverse order.

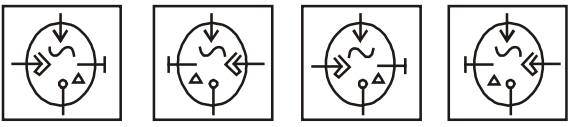
- (1) VEAS (2) SAEV  
 (3) AVES (4) EVAS

**Answer (No option is correct)**

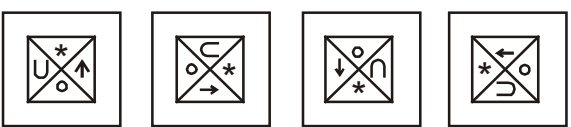
**Q. 7 to 9 : Direction** Find the odd figure.

7.   
 (1) (2) (3) (4)

**Answer (1)**

8.   
 (1) (2) (3) (4)

**Answer (3)**

9.   
 (1) (2) (3) (4)

**Answer (3)**

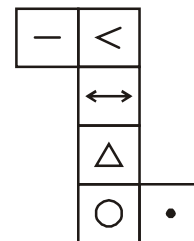
10. In the following question there is a specific relation between first and second term. The same relationship exists between third and the fourth term. Considering the same relationship choose the correct alternative that will replace the question mark.

11529 : 72135 :: 152943 : ?

- (1) 213549 (2) 223649  
 (3) 224194 (4) 215049

**Answer (1)**

**Q.11 to 13 : Direction** The adjacent figure is folded to form a cube. Observe the figure and answer the following questions.



11. Which symbol will not be adjacent to the symbol '?'

- (1) < (2) -  
 (3) ↔ (4) Δ

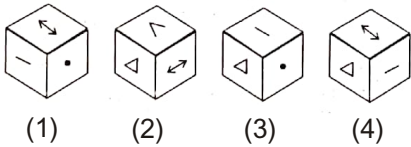
**Answer (2)**

12. Which symbol will not be opposite to the symbol Δ?

- (1) ↔ (2) •  
 (3) < (4) -

**Answer (3)**

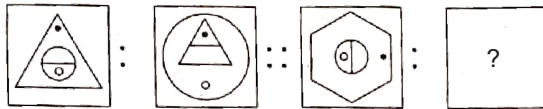
13. Which of the following figure is the figure obtained by folding the paper to form a cube?



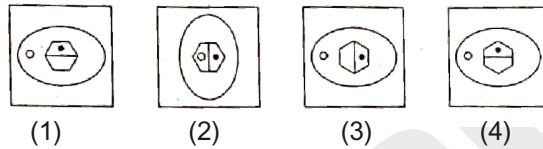
**Answer (4)**

**Q.14 to 16 : Direction** In each of the following questions, there is a specific relationship between the first and the second figure. The same relationship exists between the third and the fourth figure. Find the relation and choose the correct answer to replace the question mark.

14. Question Figure

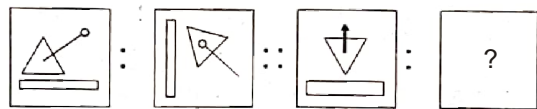


Answer Figure

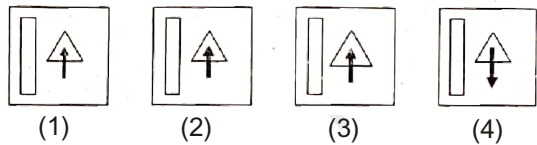


**Answer (3)**

15. Question Figure

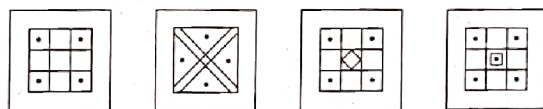
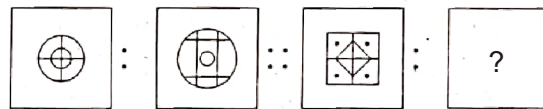


Answer Figure



**Answer (No option is correct)**

16.



**Answer (3)**

**Q.17 to 20 : Direction** In each of the following questions, choose the correct alternative that will replace the question mark in the given sequence.

17. 4, 6, 16, 62, 308, ?

- (1) 990 (2) 1721  
(3) 698 (4) 1846

**Answer (4)**

18. 6,9,18,21,42,45,?, ?

- (1) 90,91 (2) 90,92  
(3) 90,93 (4) 90,94

**Answer (3)**

19. 7,13,25,43,67 ?

- (1) 97 (2) 98  
(3) 99 (4) 100

**Answer (1)**

20. 3624, 4363, 3644, 4563, 3664, ?

- (1) 4263 (2) 4363  
(3) 4536 (4) 4763

**Answer (4)**

**Q.21 to 23 : Direction** Atul, Tushar, Nishant and Amar are four players. Except Nishant all play cricket. Atul plays only cricket and football. Only three players play football. Tushar plays all the games except kho-kho. Only one player does not play kabaddi. Only Nishant does not play football. Nishant and Amar are expert in kho-kho.

21. Which game Tushar, Nishant and Amar play?

- (1) Kabaddi  
(2) Kho-Kho  
(3) Cricket  
(4) Football

**Answer (1)**

22. Who plays all the games ?

- (1) Atul (2) Tushar  
(3) Nishant (4) Amar

**Answer (4)**

23. Which game is played by only two players ?

- (1) Cricket
- (2) Kabaddi
- (3) Football
- (4) Kho-Kho

**Answer (4)**

**Q.24 and 25 : Direction** A rhythmic arrangement of letters is given. The missing letters appear in the same order in one of the alternative answer. Choose the correct alternative.

24. abbc c ba c

- (1) baac
- (2) aabb
- (3) caab
- (4) aaab

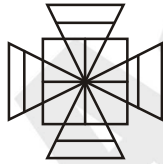
**Answer (3)**

25. abb baa bb b ab

- (1) bbaba
- (2) abaaa
- (3) abbba
- (4) ababa

**Answer (2)**

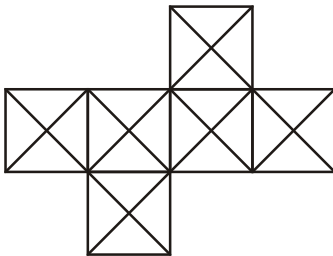
26. Find the number of triangles in the adjacent figure:



- (1) 12
- (2) 16
- (3) 20
- (4) 24

**Answer (3)**

27. Find the number of Squares from the adjacent figure :



- (1) 6
- (2) 11
- (3) 13
- (4) 10

**Answer (2)**

**Q.28 to 31 : Direction** Choose the correct alternative that will replace the question mark.

28. JDP, NGR, RJT, VMV, ?

- (1) ZPW
- (2) ZQY
- (3) ZPX
- (4) ZRY

**Answer (3)**

29.  $V_{422}D$ ,  $S_{719}G$ ,  $P_{1016}J$ ,  $M_{1313}M$ , ?

- (1)  $K_{1711}P$
- (2)  $J_{1610}P$
- (3)  $J_{1611}P$
- (4)  $I_{1512}O$

**Answer (2)**

30. 29AYC, EUG33, IQ37K, ?

- (1)  $MMO_{41}$
- (2)  $MZB_{41}$
- (3)  $MNP_{43}$
- (4)  $MPO_{44}$

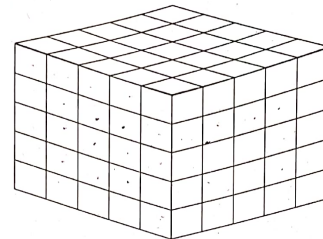
**Answer (1)**

31. ZAB, WDE, SHI, NMA, ?

- (1) VEF
- (2) UFG
- (3) FUG
- (4) HSG

**Answer (4)**

**Q.32 to 34 : Direction** The bottom and the top surface of a cube, having each side 5 units, is painted black. The opposite surface of the cube are red. Then the cube is cut into smaller cubes having each side 1 unit. On the basis of this information choose the correct alternative to answer the questions.



32. How many cubes have at least one surface painted?

- (1) 125
- (2) 116
- (3) 100
- (4) 98

**Answer (4)**

33. How many cubes have only red surface ?

- (1) 18
- (2) 30
- (3) 48
- (4) 60

**Answer (4)**

34. How many cubes have surfaces in both the colours, black and red ?

- (1) 25 (2) 50  
(3) 8 (4) 20

**Answer (Wrong)**

35. If in a mathematical code language

$\Delta + \nabla = 9$ ,  $\triangleleft + \triangleright = 13$ ,  $\triangleright + \Delta = 11$  and  $\nabla + \odot = 12$   
then find the value of  $\odot$  from the following alternatives.

- (1) 5 (2) 7  
(3) 6 (4) 8

**Answer (4)**

36. In a certain code language if

$\$ \times \text{₹} = 35$ ,  $E \times \$ = 30$ ,  $\text{₹} \times U = 63$  and  $U \times \# = 36$

then find the value of #.

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

**Answer (2)**

**Q.37 and 38 : Direction** In the following table the digits are assigned with certain symbols. Observe them carefully and choose the correct alternative to answer the questions.

Digit	9	0	8	1	7	2	6	3	5	4
Symbol	*	↪	✱	♀	↵	☺	☺	✱	⊕	⊗

37. ✱ ↵ ☺ ⊕ ✱ ⊗ = ?

- (1) ⊕ ↪ ☺  
(2) ♀ ⊕ ☺ ↪  
(3) ♀ ⊕ ↪ ☺  
(4) ⊕ ☺ ↪

**Answer (3)**

38. ☺ ↵ ✱ - ♀ \* ☺ = ?

- (1) ↪ ✱ ☺  
(2) ✱ ☺  
(3) ↪ ✱ \*  
(4) ✱ ↪

**Answer (2)**

**Q.39 and 40 : Direction** In the following sequence. Choose the correct term that will replace the question mark.

39.  $\triangle \square \ominus, \triangle \square \ominus \triangle, \triangle \ominus \square \nabla, \triangle \ominus \square \nabla ?$

- (1)  $\ominus \triangle \square \circ \nabla$   
(2)  $\ominus \triangle \circ \square \nabla$   
(3)  $\ominus \triangle \square \nabla \circ$   
(4)  $\ominus \triangle \circ \square \nabla$

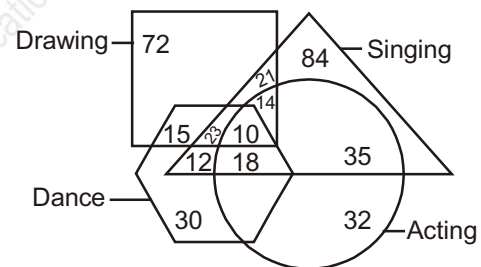
**Answer (2)**

40.  $\alpha\beta\theta\rho\delta, \beta\alpha\theta\rho\delta, \beta\theta\alpha\rho\delta, \beta\theta\rho\delta\alpha, ?$

- (1)  $\beta\theta\rho\alpha\delta$   
(2)  $\beta\theta\delta\alpha\rho$   
(3)  $\beta\theta\delta\rho\alpha$   
(4)  $\beta\theta\rho\delta\alpha$

**Answer (1)**

**Q.41 and 43 : Direction** In the adjacent figure the numbers represent the number of artists in different arts. Observe the diagram carefully and choose the correct alternative to answer the questions.



41. How many artist are expert in all the arts ?

- (1) 23 (2) 10  
(3) 14 (4) 33

**Answer (2)**

42. How many artists are good in 'acting' ?

- (1) 35 (2) 77  
(3) 67 (4) 32

**Answer (4)**

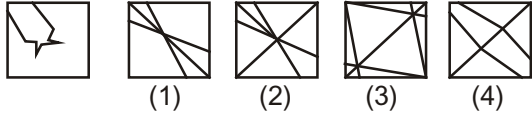
43. How many artists are good in only two arts ?

- (1) 65 (2) 97  
(3) 83 (4) 71

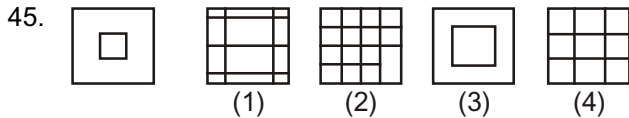
**Answer (3)**

**Q.44 and 45 : Direction** After folding a square piece of paper it appears as shown in the question figure. The paper when unfolded will look like as shown in one of the alternatives. Select the correct alternative.

44. Question Figure

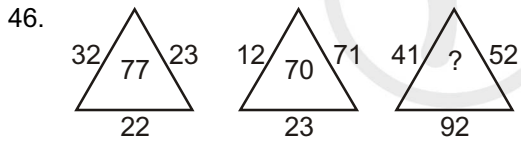


**Answer (4)**



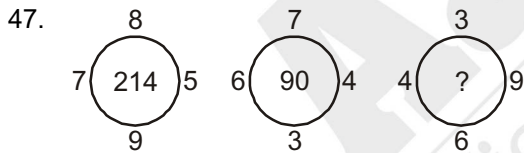
**Answer (4)**

**Q.46 and 47 : Direction** Identify the rule in the following arrangement of numbers. Choose the correct alternative that will replace the question mark.



- (1) 185
- (2) 68
- (3) 78
- (4) 93

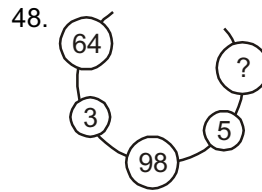
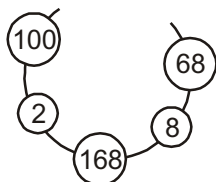
**Answer (2)**



- (1) 54
- (2) 73
- (3) 92
- (4) 108

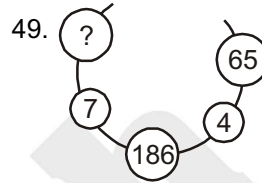
**Answer (4)**

**Q.48 and 50 : Direction** There is a specific rule in the following arrangement of numbers. Study that rule carefully. According to that rule choose the correct alternative for the questions that follows



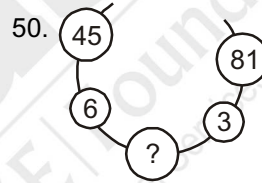
- (1) 30
- (2) 32
- (3) 34
- (4) 52

**Answer (3)**



- (1) 57
- (2) 84
- (3) 98
- (4) 121

**Answer (4)**

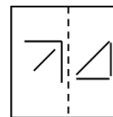


- (1) 216
- (2) 126
- (3) 113
- (4) 93

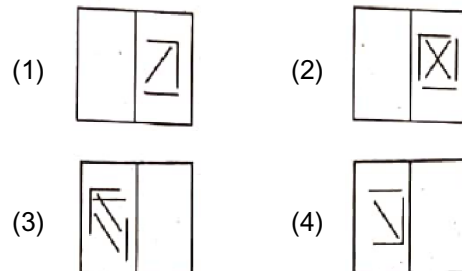
**Answer (2)**

**Q. 51 and 52: Direction** in the figure given below, a transparent square shaped paper is folded along the dotted lines, which figure will be obtained? Choose the correct figure from the given alternatives.

51. Question Figure

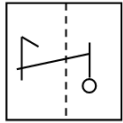


Answer Figure

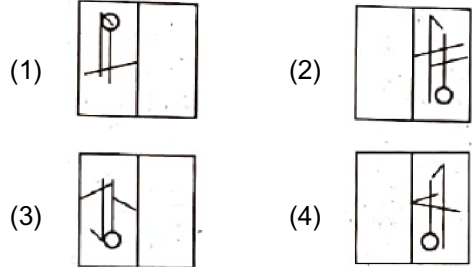


**Answer (2)**

52. Question Figure



Answer Figure



Answer (4)

**Q. 53 and 55: Direction** In each of the following questions there is a specific relationship between the first and the second term. The same relationship exists between the third and the fourth term. Find the relation and Choose the correct answer to replace the question mark.

53. KMF : LLH :: RMS : ?

- (1) SLR                      (2) SLU  
(3) SSU                      (4) SUS

Answer (2)

54. ADE : FGJ :: KNO : ?

- (1) PQR                      (2) PQT  
(3) RQP                      (4) TPR

Answer (2)

55. ? : ALKLO :: WOULD : TLRIA

- (1) BLOCK                      (2) BARGE  
(3) CONES                      (4) DONOR

Answer (4)

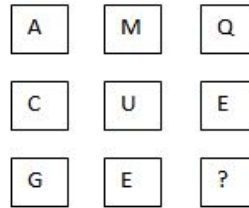
56. **Direction:** In the following question the numbers and letters in each horizontal line are related to each other by a specific rule. Identify the rule and choose the correct alternative to replace the question mark.

<b>FJ</b>	<b>25</b>	<b>16</b>	<b>NS</b>
<b>LZ</b>	<b>25</b>	<b>196</b>	<b>SX</b>
<b>NQ</b>	<b>?</b>	<b>?</b>	<b>WY</b>

- (1) 4, 9                              (2) 9, 4  
(3) 18, 169                      (4) 31, 256

Answer (1)

57. Choose the correct alternative to replace the Question mark.

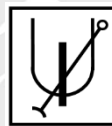


- (1) F                              (2) T  
(3) U                              (4) S

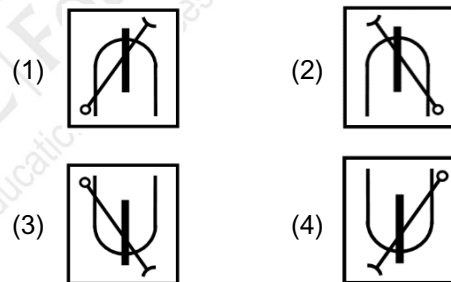
Answer (3)

**Q. 58 and 59 : Direction** Choose the water image from the alternatives given for the questions figure.

58. Question Figure

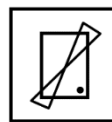


Answer Figure

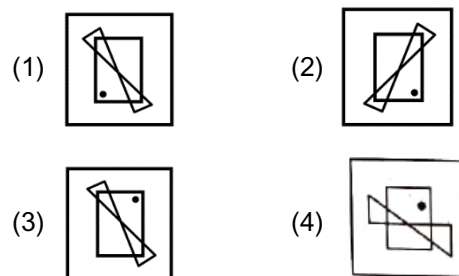


Answer (2)

59. Question Figure



Answer Figure



Answer (3)

**Q.60 and 61:Direction** Pradyumna walked 12 km west. Then he turned right and walked 5 km. Again he turned right and walked 4 km. Finally he again turned right and walked 11 km. Then

60. At the end, which direction Pradyumna is facing?

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

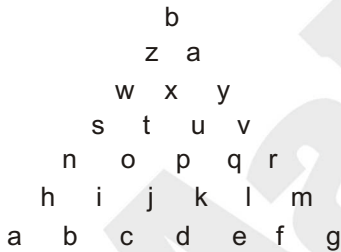
**Answer (3)**

61. At what distance is Pradyumna now from the original place?

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

**Answer (4)**

**Q.62 to 64 : Direction** Observe the following pyramid of letters and decide which alternative will replace the question mark.



62. hab :mgf :: jicd : ?

- (1) kled
- (2) kdel
- (3) ldek
- (4) delk

**Answer (1)**

63. bza :bwy :: bsv : ?

- (1) bnr
- (2) bvs
- (3) bhm
- (4) bag

**Answer (1)**

64. wsop :yvqp :: ptw : ?

- (1) pqr
- (2) puy
- (3) pos
- (4) pxb

**Answer (2)**

**Q.65 to 67 : Direction** A, B, C, D, E and F are sitting at each corner of a hexagonal table A and D are facing opposite direction. B is sitting to the left of D. D is sitting next to C and E is sitting to the other side of C.

65. Who is sitting opposite to F ?

- (1) C
- (2) E
- (3) D
- (4) B

**Answer (1)**

66. If the persons sitting in opposite direction interchange their places, then who will be sitting in between D and F.

- (1) E
- (2) A
- (3) B
- (4) C

**Answer (3)**

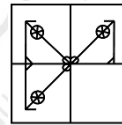
67. If only A and D interchange their places who will be in between B and C ?

- (1) A
- (2) F
- (3) E
- (4) D

**Answer (1)**

**Q.68 to 69 : Direction**The following question figure is incomplete. Select the correct alternative that will complete the figure.

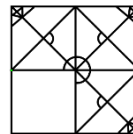
68. Question figure



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

**Answer (2)**

69. Question figure



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

**Answer (1)**



**Q.70 to 71 : Direction** Ten years ago the ratio of ages of Sunil and Anil Was 1 : 7. Ten years hence the ratio of their ages will be 1 : 2. Then

70. Find Sunil's present age.

- (1) 14 years                      (2) 40 years  
(3) 70 years                      (4) 28 years

**Answer (1)**

71. What was Anil's age ten years before?

- (1) 4 years                      (2) 28 years  
(3) 24 years                      (4) 32 years

**Answer (2)**

**Q. 72 and 73 : Direction** In a queue, Amruta is at the 11th place from front. Suneeta is at 26th place from behind. Sapna is at the central place between Amruta and Suneeta. If there are 60 persons in the queue, then

72. At which place Sapna is standing from the front?

- (1) 12                              (2) 24  
(3) 23                              (4) 26

**Answer (3)**

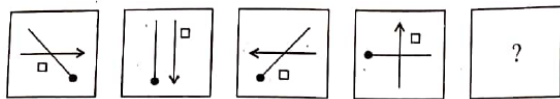
73. At which place Sapna is standing from behind ?

- (1) 37                              (2) 38  
(3) 23                              (4) 39

**Answer (2)**

**Q.74 and 75 : Direction** In each of the following questions the question figures are given in specific order. Select the correct alternative from the answer figures that will replace the question mark.

74. Question Figure

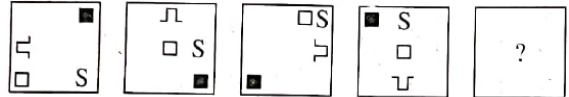


Answer Figure:

- (1)      (2)   
(3)      (4)

**Answer (2)**

75. Question Figure



Answer Figure:

- (1)      (2)   
(3)      (4)

**Answer (3)**

**Q.76 and 77 :Direction** In the following question in every row the numbers outside the bracket and inside the bracket are related to each other in a specific manner. From the given alternative choose the correct alternative that will replace the question mark.

76. 17 (68) 28

11 (22) 14

49 (?) 9

(1) 56                              (2) 105

(3) 147                              (4) 63

**Answer (4)**

77. 24 (7) 67

53 (6) 25

82 (?) 35

(1) 11                              (2) 10

(3) 9                              (4) 8

**Answer (3)**

**Q 78 to 80 :Direction** In each of the following questions find out the group of letters that matches the given group.

78. AUEFG EOVWX IAPQR

(1) OQRST                      (2) UEJKL

(3) OKEFG                      (4) UGHIJ

**Answer (2)**

79. ZXAVT WUESQ TRUPN

(1) VTRPN                      (2) JHFDB

(3) LJOHF                      (4) QOMKI

**Answer (3)**

80. BYMN DWJZ GTKP

- (1) AZFV
- (2) CXHS
- (3) HSOX
- (4) EVJP

**Answer (2)**

**Q. 81 to 83 : Direction** The word ACTIVE is written in four different code languages. Understanding the code find out the correct code language for the word given in each of the following questions:

- ACTIVE = (1) CEVKXG  
 (2) EFVKYI  
 (3) XZQFSB  
 (4) CFXNBL

81. GOLDEN = KRNFRH.

**Answer (2)**

82. ORANGE = LOXKDB

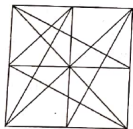
**Answer (3)**

83. PURPLE = RWTRNG

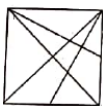
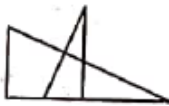

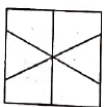
**Answer (1)**

**Q.84 and 85: Direction** In the given question a complex figure is given. Find out which of the figure given in the alternatives is hidden in the complex figure.

84. Question Figure

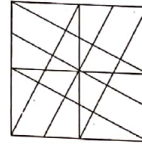


Answer Figure




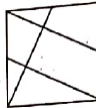
- (1) 
- (2) 
- (3) 
- (4) 

**Answer (1)**

85. Question figure


















Answer figure

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

**Answer (2) or (4)**

**Q. 86 and 87 : Direction** In the following questions numbers are given in Column I and are coded in Column II. But they are not arranged according to the order of digits in the number. Identify the code language and choose the correct alternative to answer the questions:

Column I	Column II
972	  
463	  
876	  
931	  
582	  

















86. Which of the following numbers will be coded as



- (1) 2165
- (2) 2856
- (3) 2356
- (4) 2534

**Answer (3)**

87. Which of the following code will be used to indicate the number 9135?

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

**Answer (4)**

Q88. **Direction:** Observe the following code and answer the questions that follow:

Letters → A T M G O D N R S

Digits → 9 8 7 6 5 4 3 2 1

88. Choose the correct code from the following alternatives for the word 'DONAR'.

- (1) 48391                      (2) 54872  
(3) 45392                      (4) 53971

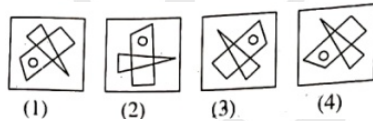
**Answer (3)**

**Q. 89 to 90. Direction** Choose the correct mirror image from the alternatives given for the question figure.

89. Question Figure



Answer Figure

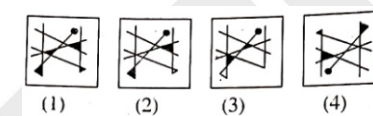


**Answer (3)**

90. Question Figure



Answer Figure



**Answer (1)**

91. In a mathematical code language

$$88 - 7 = 39, 77 - 6 = 41,$$

$$99 - 5 = 74, \text{ then } 55 - 4 = ?$$

- (1) 31  
(2) 39  
(3) 49  
(4) 34

**Answer (2)**

92. In a mathematical code language

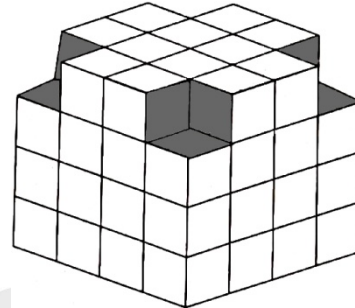
$$8 + 6 = 42, 7 + 5 = 30,$$

$$9 + 3 = 24, \text{ then } 6 + 4 = ?$$

- (1) 27                              (2) 20  
(3) 22                              (4) 24

**Answer (2)**

**Q. 93 to 95 : Direction** The following figure is made by arranging some cubes having each side 1 unit. The figure is painted from all the outside surfaces. Observe the figure and choose the correct alternative to answer the questions.



93. Maximum how many faces of a cube are painted?

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

**Answer (2)**

94. How many cubes have at least two faces coloured?

- (1) 12                              (2) 20  
(3) 28                              (4) 48

**Answer (3)**

95. How many cubes have only one face painted?

- (1) 4                              (2) 16  
(3) 24                              (4) 64

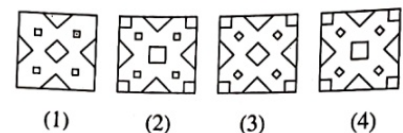
**Answer (3)**

**Q. 96 and 97 : Direction** A square piece of paper is folded and cut at specific spots as shown in the figure. The paper when unfolded will look like as one of the alternative given. Choose the correct alternative.

96. Question Figure

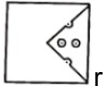


Answer Figure

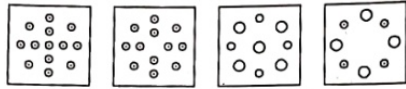


**Answer (2)**

97. Question Figure



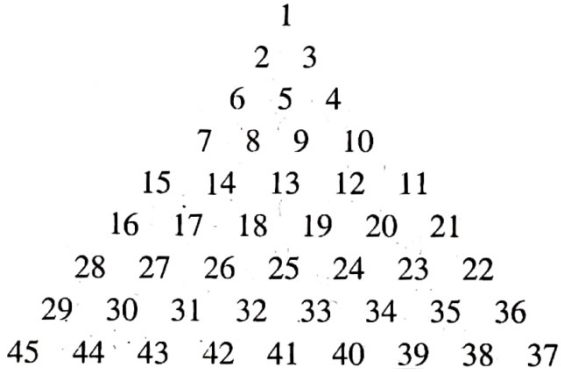
Answer Figure



(1) (2) (3) (4)

Answer (2)

**Q. 98 to 100: Direction** Observe the following pyramid and choose the correct alternative to answer the questions.



98. 1352 : 13192518 :: 59138 : ?

- (1) 25334132                      (2) 25324133  
(3) 25413332                      (4) 33253241

Answer (1)

99. 163044 : 213538 :: 173143 : ?

- (1) 393420  
(2) 203439  
(3) 183241  
(4) 203440

Answer (2)

100. 281627 : 222123 :: 292830 : ?

- (1) 352236  
(2) 353622  
(3) 362235  
(4) 363522

Answer (3)



## PART-II : SCHOLASTIC APTITUDE TEST (SAT)

1. A Tennis ball is thrown up and reaches a certain height and comes down in 8 s. If value of acceleration due to gravity ( $g$ ) = 10 m/s<sup>2</sup>, then height reached by tennis ball and velocity with which it strikes the ground respectively is \_\_\_\_\_ and \_\_\_\_\_.

- (1) 640 m, 160 m/s  
 (2) 320 m, 120 m/s  
 (3) 160 m, 80 m/s  
 (4) 80 m, 40 m/s

**Answer (4)**

2. 200 g steam at 100°C is introduced on 800 g ice at 0°C. Find the final temperature of the mixture.

- (1) 20°  
 (2) 30°  
 (3) 40°  
 (4) 50°

**Answer (No option is correct)**

3. For a colour blind person choose the incorrect statement from the following :

- (1) rod cells are present on retina  
 (2) cone cells are present on retina  
 (3) Eye sight of person is normal  
 (4) Proper information about intensity of light of object is given to brain.

**Answer (2)**

4. A sound signal is simultaneously sent in air and water from a boat on a river. The echo of sound struck by river bed is heard in 4 s, while echo struck by aeroplane is heard in 8 s. Find the distance between aeroplane and river bed [velocity of sound in air = 350 m/s, velocity of sound in water = 1500 m/s.

- (1) 4.4 km                      (2) 6.7 km  
 (3) 8.8 km                      (4) 13.4 km

**Answer (1)**

5. Unit of gravitational potential energy \_\_\_\_\_

- (1) J/s                              (2) Js  
 (3) Nm                              (4) N/m

**Answer (3)**

6. A ray of light is incident on the surface of transparent medium at an angle of 45° and is refracted in the medium at an angle of 30°. What will be the velocity of light in the transparent medium ?

- (1)  $1.96 \times 10^8$  m/s      (2)  $2.12 \times 10^8$  m/s  
 (3)  $2.65 \times 10^8$  m/s      (4)  $1.25 \times 10^8$  m/s

**Answer (2)**

7. Match the columns, choose correct alternative from given options:

I	II	III	IV
Satellite orbits	Height above earth surface (in km)	Period of revolution (hours)	Use
A. High earth orbit	a. 180 – 2000	I. 2 – 24	(i). Meteorology
B. Medium earth orbit	b. $\geq 35780$	II. $< 1$	(ii). Hubble telescope
C. Low earth orbit	c. 2000 – 35780	III. 24	(iii). GPS

- (1) A-a-I-(i), B-c-II-(ii), C-b-I-(iii)  
 (2) A-b-III-(i), B-c-I-(iii), C-a-II-(ii)  
 (3) A-b-II-(ii), B-a-III-(i), C-b-III-(iii)  
 (4) A-c-III-(iii), B-b-II-(i), C-a-II-(i)

**Answer (2)**

8. An electric iron uses a power of 1320 W when set to higher temperature. If set to lower temperature one third of higher temperature current is used. If iron is connected to a potential of 220 V, then power used to lower temperature is \_\_\_\_\_

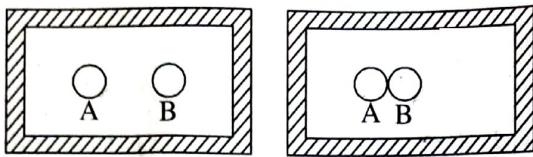
- (1) 220 W                              (2) 440 W  
 (3) 660 W                              (4) 880 W

**Answer (4)**

9. 250 kg of water per minute is to be drawn from a well 150 m deep. An electric pump of \_\_\_\_\_ can be used. ( $g = 10 \text{ m/s}^2$ )
- (1) 6 horse power
  - (2) 7 horse power
  - (3) 8 horse power
  - (4) 9 horse power

**Answer (4)**

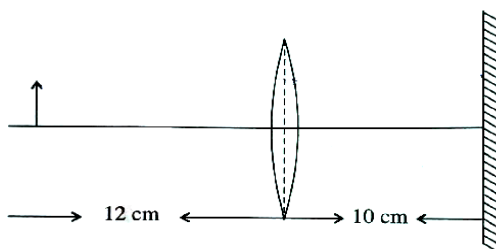
10. Two copper metal spheres [A & B] of same mass and surface areas at temperatures at  $T_A = 80^\circ\text{C}$  and  $T_B = 50^\circ\text{C}$  are kept separated in a heat resistant box. Due to \_\_\_\_\_ temperatures of A and B are changing and reaching a constant temperature of \_\_\_\_\_ C. Heat transfer takes place by \_\_\_\_\_, but if both spheres are in contact heat transfer is by \_\_\_\_\_.



- (1) Principle of heat,  $70^\circ$ , convection, radiation
- (2) Principle of heat exchange,  $68^\circ$ , radiation, conduction
- (3) Principle of heat exchange,  $65^\circ$ , radiation, conduction
- (4) Principle of heat exchange,  $65^\circ$ , conduction, convection

**Answer (3)**

11. An object, a convex lens of focal length 20 cm and a plane mirror are arranged as shown in figure. How far behind the mirror is the position of the final image of the object?



- (1) 40 cm
- (2) 30 cm
- (3) 20 cm
- (4) 10 cm

**Answer (1)**

12. Choose the incorrect statement.

- (1) Alternating current is oscillatory
- (2) Electric power is transmitted over long distances using alternating current.
- (3) Frequency of alternating current in India is 50 Hz.
- (4) Alternating current can be used for electrolysis of copper chloride.

**Answer (4)**

13. Three lenses have a combined power of 2.7 D. If the powers of two lenses are 2.5 D and 1.7 D respectively, find the focal length of the third lens.

- (1)  $-66.66 \text{ cm}$
- (2)  $-6.666 \text{ cm}$
- (3)  $-66.66 \text{ m}$
- (4)  $-6.666 \text{ m}$

**Answer (1)**

14. The groups \_\_\_\_\_ constitute the p-block.

- (1) 3 to 12
- (2) 1 to 2
- (3) 13 to 18
- (4) 1 to 7

**Answer (3)**

15. \_\_\_\_\_ metal generally occurs in free state.

- (1) Sodium
- (2) Platinum
- (3) Magnesium
- (4) Potassium

**Answer (2)**

16. In cold region during winter \_\_\_\_\_ freezes at room temperature itself and looks ice.

- (1) Palmitic acid
- (2) Linoleic acid
- (3) Oleic acid
- (4) Ethanoic acid

**Answer (4)**

17. All man made elements are placed after an element having atomic number 92 named \_\_\_\_\_.

- (1) Beryllium
- (2) Cadmium
- (3) Uranium
- (4) Lithium

**Answer (3)**

18. The molecular formula of Ethyne is \_\_\_\_\_

- (1)  $\text{C}_2\text{H}_5$
- (2)  $\text{C}_2\text{H}_4$
- (3)  $\text{C}_2\text{H}_2$
- (4)  $\text{C}_2\text{H}_6$

**Answer (3)**

19. Melting point of Tungsten metal is \_\_\_\_\_ °C.

- (1) 3422                      (2) 3322  
 (3) 3420                      (4) 3430

**Answer (1)**

20. Weak base is \_\_\_\_\_.

- (1) NaOH                      (2) KOH  
 (3) NH<sub>4</sub>OH                      (4) Na<sub>2</sub>O

**Answer (3)**

21. Molecular mass of Benzene is \_\_\_\_\_.

- (1) 72                              (2) 78  
 (3) 79                              (4) 77

**Answer (2)**

22. The monomer styrene has structural formula \_\_\_\_\_.

- (1) C<sub>6</sub>H<sub>5</sub> – CH = CH<sub>2</sub>    (2) C<sub>6</sub>H<sub>5</sub> – CH<sub>2</sub> = CH<sub>2</sub>  
 (3) C<sub>5</sub>H<sub>6</sub> – CH = CH<sub>2</sub>    (4) C<sub>5</sub>H<sub>2</sub> – CH<sub>2</sub> = CH<sub>2</sub>

**Answer (1)**

23. The percentage of carbon in Lignite is \_\_\_\_\_ %.

- (1) 70 to 90                      (2) 60 to 80  
 (3) 60 to 90                      (4) 60 to 70

**Answer (4)**

24. \_\_\_\_\_ is used in the blood test for diagnosing anaemia.

- (1) Borax                              (2) Baking soda  
 (3) Blue vitriol                      (4) Bleaching powder

**Answer (3)**

25. Aquaregia is prepared by mixing conc. HCl and conc. HNO<sub>3</sub> in the ratio \_\_\_\_\_.

- (1) 1 : 3                              (2) 3 : 2  
 (3) 1 : 4                              (4) 3 : 1

**Answer (4)**

26. Adding zinc to blue coloured copper sulphate solution, a \_\_\_\_\_ solution of zinc sulphate is formed.

- (1) Reddish                              (2) Colourless  
 (3) Greenish                              (4) Purple

**Answer (2)**

27. In living organisms sometimes any nucleotide of the gene changes its position that causes a minor change which is nothing but the \_\_\_\_\_.

- (1) Transcription  
 (2) Mutation  
 (3) Evolution  
 (4) Translocation

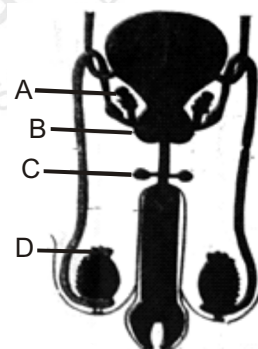
**Answer (2)**

28. In mitosis in \_\_\_\_\_ step centromeres split and thereby sister chromatids of each chromosome separate and they are pulled apart in opposite directions.

- (1) Prophase  
 (2) Metaphase  
 (3) Anaphase  
 (4) Telophase

**Answer (3)**

29. Identify Cowper's gland from the following figure.



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

**Answer (3)**

30. Identify odd term related with reproduction in living organisms.

- (1) Zygote formation    (2) Fragmentation  
 (3) Regeneration        (4) Budding

**Answer (1)**

31. Which of the following species are rare species?

- (1) Lion, tailed monkey, lesser florican  
 (2) Strip tiger, geer lion  
 (3) Red panda, musk deer  
 (4) Shekhru squirrel

**Answer (3)**

32. Which is the animal in phylum platyhelminthes?

- (1) Intestinal worm (Ascaris)
- (2) Planaria
- (3) Elephant's leg worm (Filaria worm)
- (4) Eye worm (Loa loa)

**Answer (2)**

33. Identify animal from phylum Mollusca which can perform three types of locomotions like swimming, creeping and walking.

- (1) Bivalve
- (2) Snail
- (3) Pearl
- (4) Octopus

**Answer (4)**

34. Which microbe is used in preparing beverage cider by fermenting juice in apple?

- (1) *Saccharomyces cerevisiae*
- (2) *Candida*
- (3) *Lactobacillus brevis*
- (4) *Hansenula*

**Answer (1)**

35. To prepare chocolates and toffees from sugar molasses and salt which microbe is used?

- (1) *Aspergillus fereus*
- (2) *Brevibacterium*
- (3) *Aspergillus Niger*
- (4) *Lactobacillus delbrueckii*

**Answer (3)**

36. In which variety of rice a gene synthesizing vitamin A (Beta Carotene) has been introduced?

- (1) Jaya
- (2) Golden Rice
- (3) Ratna
- (4) Indrayani

**Answer (2)**

37. Which state in the country is at forefront in controlling the cyber crimes and has been proved to be a first state to start a separate cyber crime unit?

- (1) Gujarat
- (2) Karnataka
- (3) Madhya Pradesh
- (4) Maharashtra

**Answer (4)**

38. Choose the correct order of main aspects of disaster management cycle.

- (1) Impact of disaster → Response → Resurgence → Preparation → Redemption → preparedness
- (2) Preparation → Redemption → preparedness → Impact of disaster → Response → Resurgence
- (3) Resurgence → Response → Impact of disaster → preparedness → Redemption → preparation
- (4) Redemption → Response → Impact of disaster → preparation → Resurgence → preparedness

**Answer (2)**

39. Abnormalities in sex chromosomes cause disorders Turner Syndrome (Turner - Monosomy) means

- (1) 44 + X
- (2) 44 + XX
- (3) 44 + XY
- (4) 44 + XXY

**Answer (1)**

40. Identify the bacteria which spoil cooked food?

- (1) *Rizobium*
- (2) Yeast
- (3) *Clostridium*
- (4) *Lactobacillus*

**Answer (3)**

41. Who wrote the book, 'Discourse on Method'?

- (1) Rene Descartes
- (2) Voltaire
- (3) Karl Marx
- (4) Michel Foucault

**Answer (1)**

42. Identify the wrong pair from the pairs given below:

- (1) Kootiyattam – Sanskrit theatre, Kerala
- (2) Ramman – Religious festival and ritual theatre of the Garhwal.
- (3) Ramlila – Traditional performance of the Ramayan in Uttar Pradesh
- (4) Kalbelia – Dance form in West Bengal.

**Answer (4)**

43. Where we can see the Murals of Maratha style in the old wadas in Maharashtra?

- (1) Pune
- (2) Satara
- (3) Solapur
- (4) Kolhapur

**Answer (2)**



44. Which dance form has been shown in the picture printed below:



- (1) Kathak                      (2) Kathakali  
 (3) Mohiniattam            (4) Lavni

**Answer (4)**

45. Identify the name of the gentleman, who started The First English Newspaper of India.

- (1) Balshashtri Jambhekar  
 (2) Bhau Mahajan  
 (3) James Augustus Hickey  
 (4) Sir John Marshal.

**Answer (3)**

46. Colour Television was introduced on \_\_\_\_\_ in India.

- (1) 23 July, 1927            (2) 15 September, 1959  
 (3) 1 May, 1972            (4) 15 August, 1982

**Answer (4)**

47. Who has written the play 'Ekach Pyala' ?

- (1) Ram Ganesh Gadkari  
 (2) Acharya Aatre  
 (3) Vasant Kanetkar  
 (4) Vijay Tendulkar.

**Answer (1)**

48. Identify the movie which received an international acclaim?

- (1) Bal Shivaji  
 (2) Sant Tukaram  
 (3) Raja Harishchandra  
 (4) Savitri Satyawar

**Answer (2)**

49. In which year, Indian Hockey Team won a gold medal in Olympics ?

- (1) 1928                      (2) 1932  
 (3) 1936                      (4) 1956

**Answer (3)**

50. Who was the first women author known for feminist writing ?

- (1) Pandita Ramabai  
 (2) Meera Kosambi  
 (3) Sharmila Rege  
 (4) Tarabai Shinde

**Answer (4)**

51. The Louvre museum in Paris was established in the \_\_\_\_\_ century C.E.

- (1) 16<sup>th</sup>                      (2) 17<sup>th</sup>  
 (3) 18<sup>th</sup>                      (4) 19<sup>th</sup>

**Answer (3)**

52. On \_\_\_\_\_ the mobile phone services started in India.

- (1) 22 August, 1993  
 (2) 22 August, 1994  
 (3) 22 August, 1995  
 (4) 22 August, 1996

**Answer (2)**

53. Find out the option of correct alternatives.

- |                                       |                |
|---------------------------------------|----------------|
| 'A' Group                             | 'B' Group      |
| A. Indian museum                      | I) Delhi       |
| B. National Museum                    | II) Kolkata    |
| C. Shivaji Maharaj Vastu Sangrahalaya | III) Hyderabad |
| D. Salarjang Museum                   | IV) Mumbai.    |

- (1) A-II, B-I, C-IV, D-III  
 (2) A-IV, B-III, C-II, D-I  
 (3) A-I, B-II, C-III, D-IV  
 (4) A-III, B-IV, C-I, D-II

**Answer (1)**

54. Identify the place which is famous for caves, has been shown in the picture.



- (1) Gharapuri                      (2) Verul  
(3) Ajanta                          (4) Karla

**Answer (1)**

55. Where did the Government of India establish 'The Film and Television Institute' of India in 1960?

- (1) Delhi                              (2) Mumbai  
(3) Chennai                        (4) Pune

**Answer (4)**

56. In the year 1983, the Indian Cricket team won the World Cup under the captainship of \_\_\_\_\_ .

- (1) Sunil Gavaskar                (2) Kapil Dev  
(3) Sachin Tendulkar            (4) Sourav Ganguli

**Answer (2)**

57. Constituencies are created by \_\_\_\_\_ committee of the Election Commission.

- (1) Timetable                      (2) Voting  
(3) Delimitation                    (4) Selection

**Answer (3)**

58. Which organization was established in 1920 to resolve the issue of workers ?

- (1) All India Trade Union Congress  
(2) Indian Institute of Technology  
(3) Centre for Development Union  
(4) National Mill Labour Organization

**Answer (1)**

59. Which country is not included in the five permanent members of the security council of the United Nations ?

- (1) England                        (2) France  
(3) China                            (4) India

**Answer (4)**

60. After which Lok Sabha Elections, the system of one party emerging as dominant party came to an end? Since then different parties began to come together to form coalition governments.

- (1) 1977                              (2) 1989  
(3) 1995                              (4) 2001

**Answer (1)**

61. Features of good governance are given below. Identify the wrong option out of it.

- (1) Transparency in working of the government  
(2) Responsive government.  
(3) Just and all inclusive development.  
(4) Unaccountable government.

**Answer (4)**

62. Which is the main demand of the tribal movement?

- (1) Accept the rights of tribes over forests.  
(2) Movements against the revenue collection.  
(3) Tenancy laws.  
(4) Decentralization of power.

**Answer (1)**

63. Choose the option, which is not only a political form of democracy?

- (1) Elections  
(2) Voting  
(3) Governmental structure  
(4) Protection of Human values.

**Answer (4)**

64. Which country is not involved in the central powers of the First World War?

- (1) Germany  
(2) Ottoman Empire  
(3) Bulgaria  
(4) Italy

**Answer (4)**

65. Identify the bird from the Brazil which is huge in size and fly high in the sky?

- (1) Condor  
(2) Macaws  
(3) Piranhas  
(4) Puma

**Answer (1)**

66. Identify the correct option from the pairs given below:

- |                 |                   |
|-----------------|-------------------|
| Agents          | Landforms         |
| A. River        | I. Hanging Valley |
| B. Wind         | II. Stalactite    |
| C. Glaciers     | III. Sand dune    |
| D. Ground water | IV. Canyon        |

- (1) A-I, B-II, C-III, D-IV  
 (2) A-II, B-I, C-IV, D-III  
 (3) A-IV, B-III, C-I, D-II  
 (4) A-III, B-IV, C-II, D-I

**Answer (3)**

67. Which place in western Rajasthan is driest part of India?

- (1) Mounsinram  
 (2) Cherapunji  
 (3) Jodhpur  
 (4) Jaisalmer

**Answer (4)**

68. Settlements become sparse as we move in the central part of Brazil because:

- (1) This area has favourable climate and an ideal for human settlements.  
 (2) Area is covered by thick dense equatorial rainforests.  
 (3) Area has good transportation system.  
 (4) Fertile soil (rich soil) has been found in this area.

**Answer (2)**

69. Which of the following is not the tributary of Sindhu river?

- (1) Chenab  
 (2) Satluj  
 (3) Betva  
 (4) Ravi

**Answer (3)**

70. Observe the outline map of Brazil and identify the forest type shown by shaded part.



- (1) Swamy lands  
 (2) Thorny shrubs  
 (3) Equatorial forests  
 (4) Hot Deciduous forests

**Answer (2)**

71. Identify the tributary of river Sindhu which originates near Mansarovar and flows west-ward:

- |            |            |
|------------|------------|
| (1) Jehlum | (2) Ravi   |
| (3) Chenab | (4) Satluj |

**Answer (4)**

72. Identify the correct option which shows percentage of urban population.

Group A [Percentage of Urban Population]	Group B [State/Union Territory]
1. 21-40	A. Tripura
2. 41-60	B. Delhi
3. 61-80	C. Maharashtra
4. 81-100	D. Goa

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

**Answer (1)**

73. The official Brazilian time is \_\_\_\_\_ behind GMT.

- (1) 5 hours 30 minutes  
 (2) 3 hours 50 minutes  
 (3) 3 hours  
 (4) 4 hours

**Answer (3)**

74. Which of the following option indicates sparse density of population distribution?
- (1) Mountainous hilly regions – dry desert – dense forests
  - (2) Hilly region – dense forests – industries
  - (3) Dry desert – plain lands – fertile lands
  - (4) Availability of water – mountainous regions – plain lands

**Answer (1)**

75. Identify the correct statement:
- (1) India has lower national income as compared to Brazil.
  - (2) Brazil has higher national income as compared to India.
  - (3) The per capita income of Brazil is lower than India.
  - (4) The per capita income of India is lower than Brazil.

**Answer (4)**

76. Which one is not the Fold Mountain?
- (1) The Himalayas
  - (2) The Black Forest
  - (3) The Rockies
  - (4) The Aravalis

**Answer (2)**

77. \_\_\_\_\_ longitude is the Indian Standard Time (IST).
- (1) 80° 30' East longitude
  - (2) 82° 30' West longitude
  - (3) 82° 30' East longitude
  - (4) 82.5' East longitude

**Answer (4)**

78. Identify the state of the Brazil which does not has coastline,
- (1) Rio de Janeiro
  - (2) Sao Paulo
  - (3) Goias
  - (4) Bahia

**Answer (3)**

79. Identify the correct option which shows right order of neighbouring countries lies from south to north direction.

- A. Argentina
- B. Peru
- C. Uruguay
- D. Bolivia

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

**Answer (1)**

80. Which one of the following is not used to measure salinity of the sea water?

- (1) Hydrometer
- (2) Barometer
- (3) Refractometer
- (4) Salinometer

**Answer (2)**

81. What is the sum of all natural numbers from 1 to 1000 that are divisible by 7?

- (1) 61061
- (2) 71271
- (3) 71071
- (4) 73371

**Answer (3)**

82. 160 shares of face value Rs. 100 were purchased when the market value was Rs. 120. Company had declared 20% dividend. Find the rate of return on the investment.

- (1) 16.67%
- (2) 15.67%
- (3) 14.67%
- (4) 13.67%

**Answer (1)**

83.  $\frac{x^3 + 7x^2 - x - 7}{x^2 + 6x - 7} = ?$

- (1)  $\frac{(x-1)}{(x+1)}$
- (2)  $\frac{(x+1)}{(x+7)}$
- (3)  $(x-1)$
- (4)  $(x+1)$

**Answer (4)**

84. A boat takes 3 hours to travel 30 km downstream and takes 5 hours to return to the same spot upstream. Find the speed of the boat in still water. (km/hr)

- (1) 10 km/hr
- (2) 8 km/hr
- (3) 6 km/hr
- (4) 5 km/hr

**Answer (2)**

85. Find the difference between the sum of all even numbers from 1 to 1000 and the sum of all odd numbers from 1 to 1000.
- (1) 0                                      (2) 250  
 (3) 500                                    (4) 1000

**Answer (3)**

86. From a frequency distribution table if  $N = 100$ ,  $h = 10$  c.f. = 38  $f = 18$   $L = 50$ , then find the median for the distribution. Choose the correct alternative.
- (1) 56.67                                  (2) 55.76  
 (3) 56.76                                  (4) 55.87

**Answer (1)**

87. If the geometric mean of  $(21 - x)$  and  $(35 - x)$  is  $(27 - x)$ . Then find the value of  $x^2$ .
- (1) 4    (2) 25  
 (3) 16                                        (4) 9

**Answer (4)**

88. The difference between the diagonals of a rhombus is 4 cm and the area of the rhombus is  $96 \text{ cm}^2$ . Then find the difference between the length of the smaller diagonal and the length of the side of the rhombus.
- (1) 2 cm                                      (2) 3 cm  
 (3) 4 cm                                      (4) 6 cm

**Answer (1)**

89. A shopkeeper sold a bicycle to a customer for Rs. 10304 including GST. The rate of GST was 12%. Find SGST payable to him.
- (1) Rs. 1104                                (2) Rs. 552  
 (3) Rs. 1210                                (4) Rs. 605

**Answer (2)**

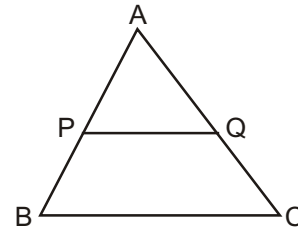
90. If  $D = \begin{vmatrix} 3\sqrt{5} & 6 \\ 5 & m \end{vmatrix} = 0$

Find the value of  $m$ .

- (1)  $\sqrt{5}$                                       (2)  $4\sqrt{5}$   
 (3)  $\sqrt{3}$                                       (4)  $2\sqrt{5}$

**Answer (4)**

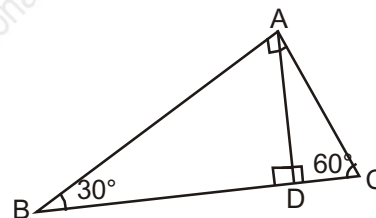
91. In triangle ABC Seg PQ  $\parallel$  side BC, Seg PQ divides  $\triangle ABC$  in two parts which are equal in areas. Which of the following alternatives indicate the ratio  $\frac{BP}{AB}$  ?



- (1)  $\frac{\sqrt{2}-1}{\sqrt{2}}$                                   (2)  $\frac{\sqrt{2}+1}{\sqrt{2}}$   
 (3)  $\frac{2+\sqrt{2}}{\sqrt{2}}$                                 (4)  $\frac{2-\sqrt{2}}{\sqrt{2}}$

**Answer (1)**

92. Two triangles of the angles  $30^\circ-60^\circ-90^\circ$  are joined together as shown in the figure and  $\triangle BAC$  is formed. Which of the following is the ratio of perimeter of  $\triangle ABD$  to the perimeter of  $\triangle ACD$ ?



- (1)  $2 : \sqrt{3}$                                   (2)  $\sqrt{3} : 1$   
 (3)  $3 : \sqrt{3}$                                   (4)  $\sqrt{3} : 2$

**Answer (2)**

93. The circles with centres P and Q have different radius. They touch each other at T. A line passing through T meets the circle at A and B respectively. Which of the following statement is true?
- (1) Seg PA  $\cong$  Seg QB  
 (2) Seg Pa  $\parallel$  Seg QB  
 (3) Seg PA and Seg QB are perpendicular  
 (4) Seg PA and Seg QB will intersect each other

**Answer (2)**

94. Which of the following points are not on the X-axis? P(0, 3), Q(1, 0), R(0, -1), S(-5, 0) and T(1, 2).

- (1) Only P and R      (2) Only Q and S  
(3) Only P, R and T    (4) Only Q, S and T

**Answer (3)**

95. A pole of height 6 m casts shadow of  $2\sqrt{3}$  m on the ground. Find the angle of elevation of the sun.

- (1)  $90^\circ$                       (2)  $45^\circ$   
(3)  $30^\circ$                       (4)  $60^\circ$

**Answer (4)**

96. Which of the following are the co-ordinates of the centre of the circle that passes through P(6, -6), Q(3, -7) and R(3, 3)?

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

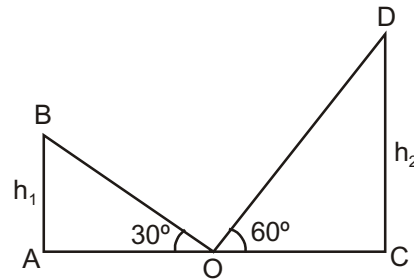
**Answer (1)**

97. The height of a cone is 9 cm and the radius of the base is 7 cm. The cone is melted and a cuboid is formed. The length of the base of the cuboid is 11 cm and breadth is 6 cm. Find the height of the cuboid.

- (1) 11 cm                        (2) 9 cm  
(3) 7 cm                         (4) 5 cm

**Answer (3)**

98. AB and CD are two poles of height  $h_1$  and  $h_2$  respectively. Point 'Q' is the centre of segment AC. When the observer looks at the top of the poles from point 'Q' the angle of elevation formed is  $30^\circ$  and  $60^\circ$  respectively. Find the ratio of  $h_1$  and  $h_2$



- (1) 1 : 2                              (2) 2 : 3  
(3)  $1 : \sqrt{3}$                         (4) 1 : 3

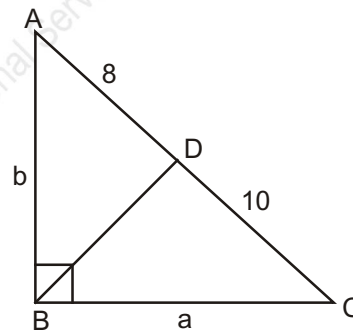
**Answer (4)**

99. The diameter of a metallic sphere is 6 cm. It was melted to make a wire of diameter 4 mm. Find the length of the wire.

- (1) 90 mm                        (2) 90 cm  
(3) 9 cm                          (4) 9 m

**Answer (4)**

100. In right angled  $\triangle ABC$   $\angle B = 90^\circ$   $BD \perp AC$ ,  $AB = b$ ,  $BD = c$ ,  $BC = a$ ,  $AD = 8$   $DC = 10$ . Then find 'b'.



- (1)  $4\sqrt{5}$                               (2) 12  
(3)  $6\sqrt{5}$                               (4)  $\sqrt{18}$

**Answer (2)**

