

NATIONAL TALENT SEARCH EXAMINATION 2019-20

MAHARASHTRA STATE LEVEL EXAMINATION QUESTION BOOKLET MENTAL ABILITY TEST

MEDIUM : MARATHI WITH ENGLISH VERSION

DATE : 17TH November 2019

Maximum Marks : 100

TIME : 120 Minutes

Read the following instruction carefully before you answer the questions,.

1. Answers 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 Center 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.
3. Please ensure that you have received Mental Ability Test answer sheet.
4. Total number of questions are 100 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 to 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 Center Code, Seat No. and rough work anywhere in this booklet.

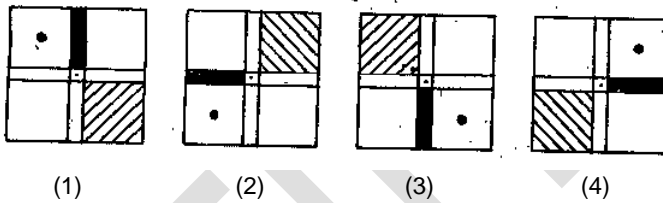
Direction : In the following questions a specific group of numbers is given. From the alternatives. Find out the correct alternative that matches the given group.

1. 160 576 252
(A) 393 (B) 466
(C) 80 (D) 182
 2. 132 736 350
(A) 223 (B) 72
(C) 505 (D) 992
 3. 193 454 265
(A) 572 (B) 823
(C) 734 (D) 367
- Q. 4 and 5 : Direction Find the odd term.
4. (1) DUFW (2) HQJS
(3) JOLQ (4) AWCZ
 5. (1) AEVZ (2) FJQU
(3) CQTX (4) JMOS
6. ABCDEFGHIJKLMNOPQRSTUVWXYZ

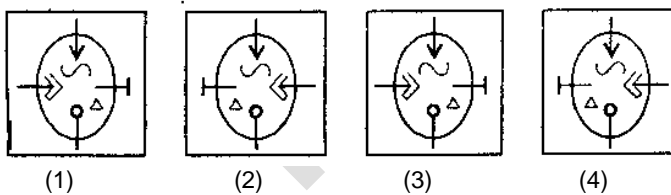
From the above alphabets which word will be formed from the given alternatives if the meaningful word formed by the 5th and 10th letter from the right and 1st and 5th letter from the left is written in the reverse order.

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

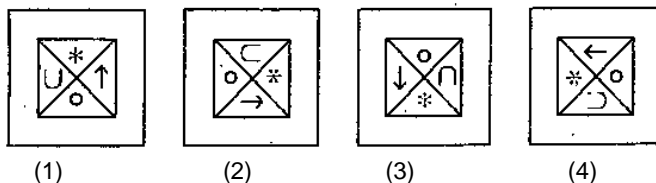
Q.7 to 9 : Direction Find the odd figure.



Q.8



Q.9



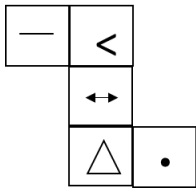
Q.10 In the following question there is a specific relation between first and second term. The same relationship exists between third and the fourth term. Considering the same relationship choose the correct alternative that will replace the question mark.

11529 : 72135 :: 152943 : ?

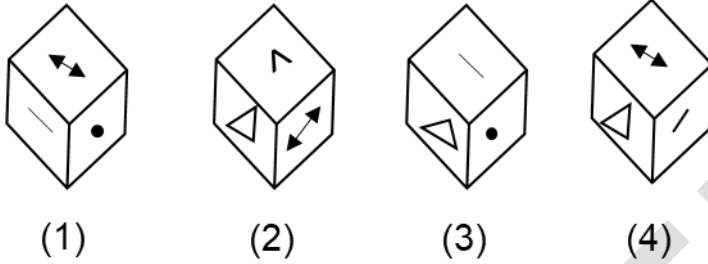
- (A) 213549 (B) 223649
- (C) 224194 (D) 215049

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

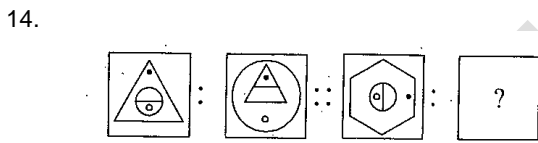
20



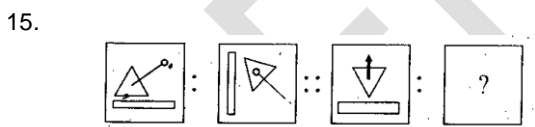
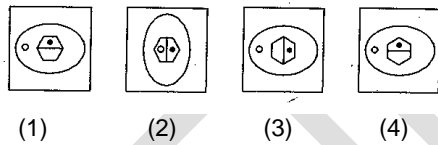
11. Which symbol will not be adjacent to the symbol '•'
 (A) < (B) —
 (C) ↔ (D) Δ
12. Which symbol will be opposite to the symbol Δ ?
 (A) ↔ (B) ⊥
 (C) < (D) —
13. Which of the following figure is the figure obtained by folding the paper to form a cube?



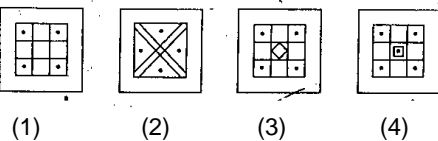
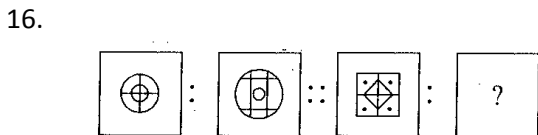
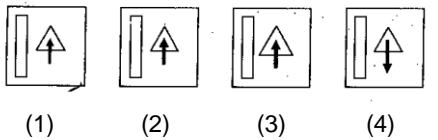
Q.14. to 16: Direction In each of the following questions, there is a specific relationship between the first and the second figure. The same relationship exists between the third and the fourth figure. Find the relation and choose the correct answer to replace the question mark.



Answer Figure



Answer Figure



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

20

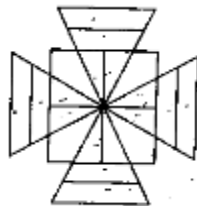
17. 4, 6, 16, 62, 308, ?
 (1) 990 (2) 1721
 (3) 698 (4) 1846
18. 6, 9, 18, 21, 42, 45, ?, ?
 (1) 90, 91 (2) 90, 92
 (3) 90, 93 (4) 90, 94
19. 7, 13, 25, 43, 67 ?
 (1) 97 (2) 98
 (3) 99 (4) 100
20. 3624, 4363, 3644, 4563, 3664, ?
 (1) 4263 (2) 4363
 (3) 4536 (4) 4763

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

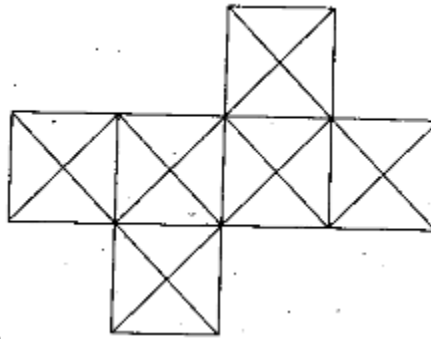
21. Which game Tushar, Nishant and Amar play?
 (1) Kabaddi (2) Kho-Kho
 (3) Cricket (4) Football
22. Who plays all the games?
 (1) Atul (2) Tushar
 (3) Nishant (4) Amar
23. Which game is played by only two players?
 (1) Cricket (2) Kabaddi
 (3) Football (4) Kho-Kho

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. ab – bc – c – ba – c
 (1) baac (2) aabb
 (3) caab (4) aaab
25. abb – baa – bb – b – ab
 (1) bbaba (2) abaaa
 (3) abbba (4) ababa
26. Find the number of triangles in the adjacent figure:



- (1) 12 (2) 16
 (3) 20 (4) 24
27. Find the number of squares from the adjacent figure:



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

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

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) $J_{1512}O$

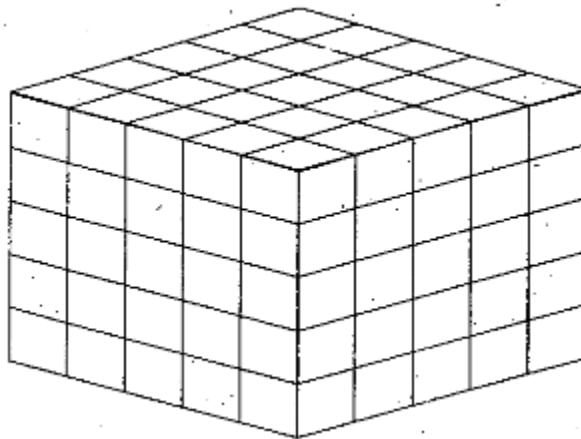
30. 29AYC, EUG33, IQ37K, ?

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

31. ZAB, WDE, SHI, NMA, ?

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

Q . 32 to 34 : Direction The balloon and the top surface of a cube, having each side 5 units, is painted black. The opposite surfaces 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

33. How many cubes have only red surface?

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

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

- (1) 25
(2) 50

20

(3) 08

(4) 20

35. If in a Mathematical code language

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

(1) 5

(2) 7

(3) 6

(4) 8

36. In a certain code language if $\$ \times rs = 35$, $E \times \$ = 30$, $rs \times U = 63$ and $U \times \neq = 36$ then find the value of \neq

(1) 6

(2) 4

(3) 5

(4) 9

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

Digit	9	0	8	1	7	2	6	3	5	4
Symbol	*	↻	⊗	⊙	⌒	⌒	⌒	⊗	⊕	⊗

37. $\otimes \lrcorner \cup + \cup \otimes \otimes = ?$

(1) $\oplus \cup \cup$

(2) $\odot \oplus \cup \cup$

(3) $\odot \oplus \cup \cup$

(4) $\oplus \cup \cup$

38. $\cup \lrcorner \otimes - \odot * \cup = ?$

(1) $\cup \otimes \cup$

(2) $\otimes \cup$

(3) $\cup \otimes *$

(4) $\otimes \cup$

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

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

(1) $\ominus \triangle \square \circ \nabla$

(2) $\ominus \triangle \circ \square \nabla$

(3) $\ominus \triangle \square \nabla \circ$

(4) $\ominus \triangle \circ \square \nabla$

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) $\beta\theta\delta\rho\alpha$

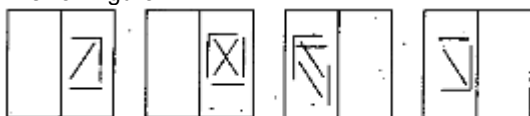
(4) $\beta\theta\rho\delta\alpha$

Q no 51 and 52 : Direction In the 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



(1)

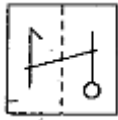
(2)

(3)

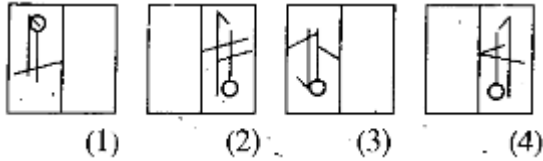
(4)

20

52. Question Figure



Answer Figure



Q.53 to 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 : LLII :: RMS : ?

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

54. ADE : FGJ :: KNO : ?

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

55. ? : ALKLO :: WOULD : TLRIA

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

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.

FJ	25	16	NS
LZ	25	196	SX
NQ	?	?	WY

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

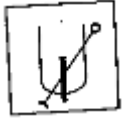
57. Choose the correct alternative to replace the question mark.

A	M	Q
C	U	E
G	E	?

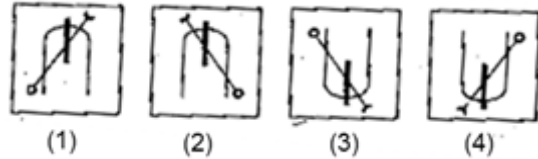
- (1) F
- (2) T
- (3) U
- (4) S

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

58. Question Figure



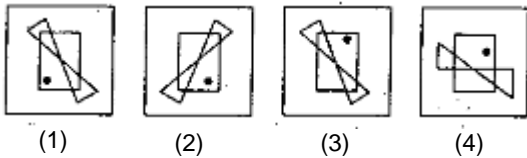
Answer Figure



59. Question Figure



Answer Figure



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

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

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

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

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

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

```

      b
     . . z a
      w x y
     s t u v
    n o p q r
   h i j k l m
  a b c d e f g
    
```

62. had : mgf :: jicd : ?

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

63. bza : bwy :: bsv : ?

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

64. wsop : yvqp :: ptw : ?

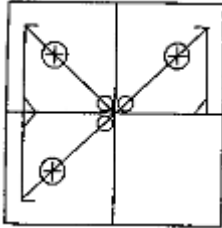
- (1) pqr
- (2) puy
- (3) pos
- (4) pxb

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 each other side of C.

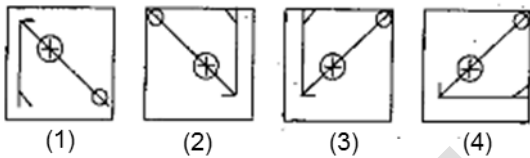
65. Who is sitting opposite to F ?
 (1) C (2) E
 (3) D (4) B
66. If the persons sitting in opposite direction interchange their places, then who will be sitting in between D and F
 (1) E (2) A
 (3) B (4) C
67. If only A and D interchange their place who will be in between B and C?
 (1) A (2) F
 (3) E (4) D

Q . 68 and 69 : Direction he following question figure is incomplete. Select the correct alternative that will complete the figure

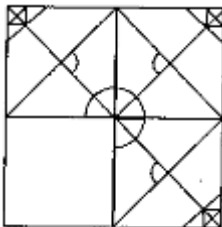
68. Question Figure



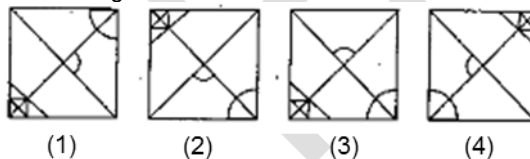
Answer Figure



69. Question Figure



Answer Figure



Q . 70 and 71 : Direction Ten years age 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
71. What was Anil's age ten years before?
 (1) 4 years (2) 28 years
 (3) 24 years (4) 32 years

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

20

(3) 23

(4) 26

73. At which place Sapna is standing from behind?

(1) 37

(2) 38

(3) 23

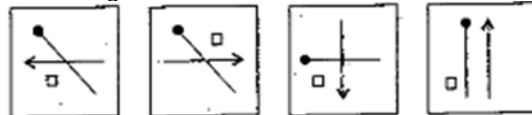
(4) 39

Q . 74 and 75: Direction In each of the following questions 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)

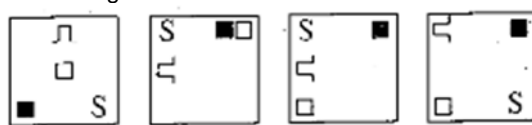
(3)

(4)

75. Question Figure



Answer Figure



(1)

(2)

(3)

(4)

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

77. 24 (7) 67

53 (6) 25

82 (?) 35

(1) 11

(2) 10

(3) 9

(4) 8

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) UGIIJ

79. ZXAVT WUESQ TRUPN

(1) VTRPN

(2) JHFDB

(3) LJOHF

(4) QOMKL

80. BYMN DWJZ GTKP

(1) AZFV

(2) CXHS

(3) HSOX

(4) EVJP

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

ACTIVE

- (1) CEVKXG
(3) XZQFSB

- (2) EFVKYI
(4) CFXNBL

81. GOLDEN = KRNFHR

- (1) CEVKXG
(3) XZQFSB

- (2) EFVKYI
(4) CFXNBL

82. ORANGE = LOXKDB

- (1) CEVKXG
(3) XZQFSB

- (2) EFVKYI
(4) CFXNBL

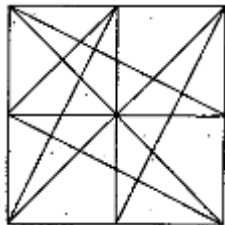
83. PURPLE = RWTRNG

- (1) CEVKXG
(3) XZQFSB

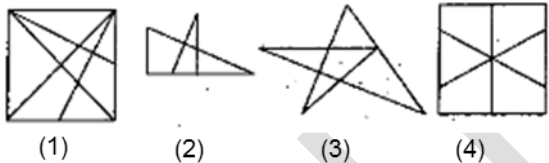
- (2) EFVKYI
(4) CFXNBL

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.

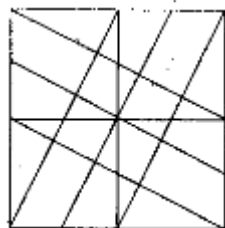
84. Question Figure



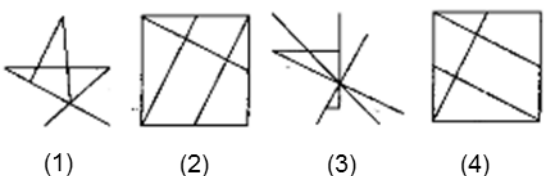
Answer Figure



85. Question Figure



Answer Figure



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

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

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

Q. 88 **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

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

89. Question Figure



Answer Figure

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

90. Question Figure



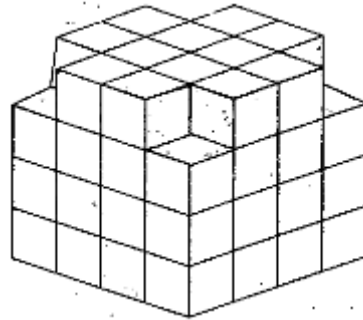
Answer Figure

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

20

91. In a Mathematical code language
 $88 - 7 = 39$, $77 - 6 = 41$, $99 - 5 = 74$, then $55 - 4 = ?$
 (1) 31 (2) 39
 (3) 49 (4) 34
92. In a Mathematical code language
 $8 + 6 = 42$, $7 + 5 = 30$, $9 + 3 = 24$, then $6 + 4 = ?$
 (1) 27 (2) 20
 (3) 22 (4) 24

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



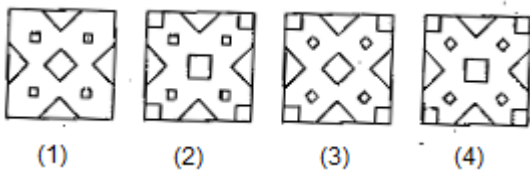
93. Maximum how many faces of a cube are painted?
 (1) 5 (2) 3
 (3) 4 (4) 2
94. How many cubes have at least two faces coloured?
 (1) 12 (2) 20
 (3) 28 (4) 48
95. How many cubes have only one face painted?
 (1) 4 (2) 16
 (3) 24 (4) 64

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



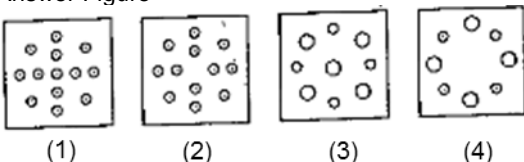
Answer Figure



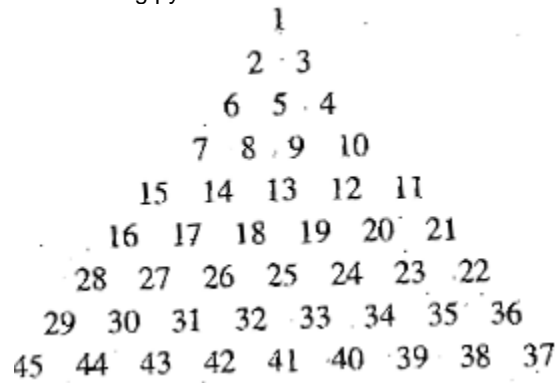
97. Question Figure



Answer Figure



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
99. 163044 : 213538 :: 173143 : ?
 (1) 393420 (2) 203439
 (3) 183241 (4) 203440
100. 281627 : 222123 :: 292830 : ?
 (1) 352236 (2) 353622
 (3) 362235 (4) 363522

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NATIONAL TALENT SEARCH EXAMINATION 2019 – 20

CENTER CODE			
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SEAT NO							
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**MAHARASHTRA STATE LEVEL EXAMINATION
QUESTION BOOKLET****SCHOLASTIC APTITUDE TEST****CLASS X****MEDIUM: MARATHI WITH ENGLISH VERSION****[Date : 17th November, 2019]****[Time : 13:30 P.M. to 15:30 P.M.]****Time : 120 Minutes****Maximum Marks : 100**

INSTRUCTION TO CANDIDATES

Read the following instructions carefully before you answer the questions.

1. Answers 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

CENTER CODE	2	1	0	2
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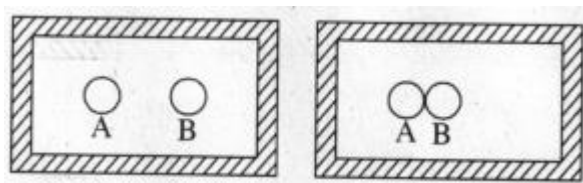
SEAT NO	3	9	2	0	2	1	0	2	1	2	3
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3. Please ensure that you have received Scholastic Aptitude Test Answer Sheet
4. Total number of questions are 100 for this paper. All questions carry one mark each.
5. All questions are compulsory.
6. For each question there are four options given in question paper. Check for correct answer and bubble correct option from four circles given in answer sheet by Black/Blue pen. Please do not write any answers on questions papers.
7. Start answering from first question one after till last question.
8. If you do not know the answer to 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 box given under each page.
10. Do not write anything except Center Code, Seat NO. and rough work anywhere in this booklet

- A tennis ball is thrown up and reaches a certain height and comes down in 8s. If values of acceleration due to gravity ($g = 10\text{ms}^{-2}$), then height reached by tennis ball and velocity with which it strikes the ground respectively is ____ and ____
 (1) 640m, 160m/s (2) 320m, 120m/s
 (3) 160m, 80m/s (4) 80m, 40m/s
- 200g steam at 100°C is introduced on 800g ice at 0°C . Find the final temperature of the mixture
 (1) 20° (2) 30°
 (3) 40° (4) 50°
- 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) Eyesight of person is normal
 (4) Proper information about intensity of light of object is given to brain
- A sound signal is simultaneously sent in air and water from a bat on a river. The echo of sound struck by river bed is heard in 4s, while echo struck by aeroplane is heard in 8s. Find the distance between aeroplane and river bed [velocity of sound in air = 350m/s , velocity of sound in water = 1500m/s .]
 (1) 4.4km (2) 6.7km
 (3) 8.8km (4) 13.4km
- Unit of gravitational potential energy ____
 (1) J/s (2) Js
 (3) Nm (4) N/m
- 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) $1.96 \times 10^8\text{m/s}$ (2) $2.12 \times 10^8\text{m/s}$
 (3) $2.65 \times 10^8\text{m/s}$ (4) $1.25 \times 10^8\text{m/s}$
- Match the columns, Choose correct alternative from given options:

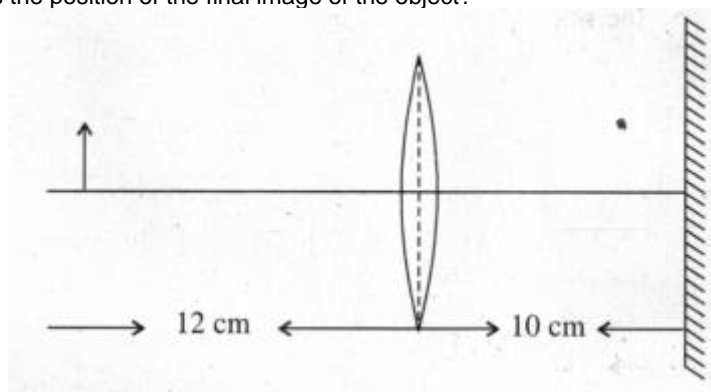
I	II	III	IV
Satellite Orbits	Height above earth surface (in km)	Period of revolution (hours)	Use
A. High earth orbit B. Medium earth orbit C. Low earth orbit	a. 180 – 2000 b. ≥ 35780 c. 2000 – 35780	I. 2 – 24 II. < 1 III. 24	(i) meteorology (ii) Hubble telescope (iii) G.P.S

- A-a-I-(i), B-c-II-(ii), C-b-I-(iii)
 - A-b-II-(ii), B-a-III-(i), C-b-III-(iii)
 - A-a-III-(i), B-c-I-(iii), C-a-II-(ii)
 - A-c-III-(iii), B-b-II-(i), C-a-II-(i)
- An electric iron uses a power of 1320W when set to higher temperature. If set to lower temperature on third of higher temperature current is used. If iron is connected to a potential of 220V, then power used to lower temperature is ____
 (1) 220W (2) 440W
 (3) 660W (4) 880W
- 250kg of water per minute is to be drawn from a well 150m deep. An electric pump of ____ can be used. ($g = 10\text{ms}^{-2}$)
 (1) 6 horse power (2) 7 horse power
 (3) 8 horse power (4) 9 horse power
- Two copper metal spheres [A & B] of same mass and surface area at temperature 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 bt ____



- (1) Principle of heat, 70° , convection radiation
- (2) Principle of heat exchange, 68° radiation conduction
- (3) Principle of heat exchange, 65° radiation, conduction
- (4) Principle of heat exchange, 65° conduction, convection

11. An object, a convex lens of focal length 20cm 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

12. Choose the correct 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 50Hz
- (4) Alternating current can be used for electrolysis of copper chloride

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

- (1) -66.66 cm
- (2) -6.666 cm
- (3) -66.66 m
- (4) -6.666 m

14. The groups _____ constitute the p-block

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

15. _____ metal generally occurs in free state

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

16. In cold region during winter _____ freezes at room temperature itself and looks like ice.

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

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

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

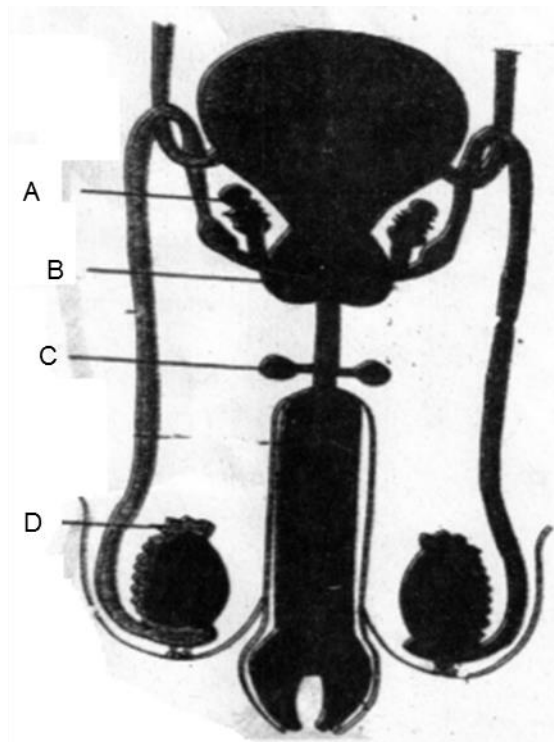
18. The molecular formula of Ethyne is _____

- (1) C_2H_5
- (2) C_2H_4
- (3) C_2H_2
- (4) C_2H_6

19. Melting point of Tungsten metal is _____

- (1) 3422
- (2) 3322

- (3) 3420 (4) 3430
20. Weak base is _____
 (1) NaOH (2) KOH
 (3) NH_4OH (4) Na_2O
21. Molecular mass of Benzene is _____
 (1) 72 (2) 78
 (3) 79 (4) 77
22. The monomer styrene has structural formula _____
 (1) $\text{C}_6\text{H}_5 - \text{CH} = \text{CH}_2$ (2) $\text{C}_6\text{H}_5 - \text{CH}_2 = \text{CH}_2$
 (3) $\text{C}_5\text{H}_6 - \text{CH} = \text{CH}_2$ (4) $\text{C}_5\text{H}_2 - \text{CH}_2 = \text{CH}_2$
23. The percentage of carbon in Lignite is _____ %
 (1) 70 to 90 (2) 60 to 80
 (3) 60 to 90 (4) 60 to 70
24. _____ is used in the blood test for diagnosing anaemia.
 (1) Borax (2) Baking soda
 (3) Blue vitriol (4) Bleaching powder
25. Aquaregia is prepared by mixing conc. HCl and conc. HNO_3 in the ratio _____
 (1) 1 : 3 (2) 3 : 2
 (3) 1 : 4 (4) 3 : 1
26. Adding zinc to blue coloured copper sulphate solution, a _____ solution of zinc sulphate is formed
 (1) Reddish (2) Colourless
 (3) Greenish (4) Purple
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
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
29. Identify Cowper's gland from the following figure:



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

30. Identify odd term related with reproduction in living organisms.
- (1) Zygote formation
 - (2) Fragmentation
 - (3) Regeneration
 - (4) Budding
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
32. Which is the animal in phylum platyhelminthes?
- (1) Intestinal worm (Ascaris)
 - (2) Planaria
 - (3) Elephant's ;eg worm (Filaria worm)
 - (4) Eye worm (Loa loa)
33. Identify animal from phylum Mollusca which can be perform three types of locomotions like swimming, creeping and walking.
- (1) Bivalve
 - (2) Snail
 - (3) Pearl
 - (4) Octopus
34. Which microbe is used in preparing beverage cider by fermenting juice in apple?
- (1) Saccharmoyces Cerevisiae
 - (2) Candida
 - (3) Lactobacillus brevis
 - (4) Hansenula
35. To prepare chocolates and toffees from sugar molasses and salt which microbe is used?
- (1) Aspergillus fereus
 - (2) Brevibacterium
 - (3) Aspergillus Nigar
 - (4) Lactobacillus delbrueckii
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
37. Which state in the country is at forefront in controlling the cyber crimes and has been proved to be a first to start a separate cybercrime unit?
- (1) Gujarat
 - (2) Karnataka
 - (3) Madhya Pradesh
 - (4) Maharashtra
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

39. Abnormalities in sex chromosomes cause disorders Turner Syndrome (Turner – Monosomy) means
 (1) $44+X$ (2) $44+XX$
 (3) $44+XY$ (4) $44+XXY$
40. Identify the bacteria which spoil cooked food?
 (1) Rizobium (2) Yeast
 (3) Clostridium (4) Lactobacillus
41. Who write the book, 'Discourse on Method'?
 (1) Rene Descartes (2) Voltaire
 (3) Karl Marx (4) Michael Foucault
42. Identify the wrong pair from the pairs given below:
 (1) Kootiyattam – Sanskrit theatre, Kerala
 (2) Ramman – Religious festival and ritual of the Garwal
 (3) Ramlila – Traditional performance of the Ramayan in Uttar Pradesh
 (4) Kalbelia – Dance form in West Bengal
43. Where we can see the Murals of Maratha style in the old wadas in Maharashtra?
 (1) Pune (2) Satara
 (3) Solapur (4) Kolhapur
44. Which dance form has been shown in the picture printed below:



- (1) Kathak (2) Kathakali
 (3) Mohiniattam (4) Lavni
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
46. Colour television was introduced on _____ in India
 (1) 23 July, 1927 (2) 15 September, 1959
 (3) 1 May, 1972 (4) 15 August, 1982
47. Who has written the Play 'Ekach Pyala'?
 (1) Ram Ganesh Gadkari (2) Aacharya Aatre
 (3) Vasant Kanetkar (4) Vijay Tendulkar
48. Identify the movie which received an international acclaim?
 (1) Bal Shivaji (2) Sant Tukaram
 (3) Raja Harishchandra (4) Savitri Satyawar
49. In which year, Indian Hockey Team won a gold medal in Olympics?
 (1) 1928 (2) 1932
 (3) 1936 (4) 1956
50. Who was the first women author known for feminist writing?
 (1) Pandita Ramabai (2) Meera Kosambi
 (3) Sharmila Rege (4) Tarabai Shinde

51. The Louvre museum in Paris was established in the _____ century C.E
 (1) 16th (2) 17th
 (3) 18th (4) 19th
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
53. Find out the option of correct alternatives
- | | |
|---|---|
| <p>'A' Group</p> <p>A. Indian museum
 B. National Museum
 C. Shivaji Maharaj Vaastu Sangrahalaya
 D. Salarjang Museum</p> <p>(1) A – II, B – I, C – IV, D - III
 (3) A – I, B – II, C – III, D - IV</p> | <p>'B' Group</p> <p>(I) Delhi
 (II) Kolkata
 (III) Hyderabad
 (IV) Mumbai</p> <p>(2) A – IV, B – III, C – II, D - I
 (4) A – III, B – IV, C – I, D - II</p> |
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54. Identify the place which is famous for caves, has been shown in the picture



- (1) Gharapuri (2) Verul
(3) Ajanta (4) Karla
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
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
57. Constitution are created by ____ committee of the Election Commission.
(1) Timetable (2) Voting
(3) Delimitation (4) Selection
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
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
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
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
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
63. Choose the option, which is not only a political form of democracy?
(1) Election (2) Voting
(3) Government Structure (4) Protection of Human Values
64. Which country is not involved in the central powers of the first world war?
(1) Germany (2) Ottoman Empire
(3) Bulgaria (4) Italy
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

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 |
67. Which place in western Rajasthan is driest part of India?
- | | |
|----------------|----------------|
| (1) Mounsinram | (2) Cherapunji |
| (3) Jodhpur | (4) Jaisalmer |
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.
69. Which of the following is not the tributary of Sindhu river?
- | | |
|------------|------------|
| (1) Chenab | (2) Satluj |
| (3) Betva | (4) Ravi |
70. Observe the outline map of Brazil and identify the forest type shown by shaded part.



- | | |
|------------------------|----------------------------|
| (1) Swampy lands | (2) Thorny shrubs |
| (3) Equatorial forests | (4) Hot Deciduous forests. |
71. Identify the tributary of river Sindhu which originates near Man Sarovar and flows west – ward:
- | | |
|------------|------------|
| (1) Jhelum | (2) Ravi |
| (3) Chenab | (4) Satluj |
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 |
73. The official Brazilian time is _____ behind GMT.
- | | |
|------------------------|------------------------|
| (1) 5 hours 30 minutes | (2) 3 hours 50 minutes |
| (3) 3 hours | (4) 4 hours |
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
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
76. Which one is not the Fold mountain?
 (1) The Himalayas (2) The Black Forest
 (3) The Rockies (4) The Aravalis
77. _____ longitude is the Indian standard Time (IST)
 (1) $80^{\circ} 30'$ East longitude (2) $82^{\circ} 30'$ West longitude
 (3) $82^{\circ} 30'$ East longitude (4) 82.5° East longitude
78. Identify the state of the Brazil which does not has coastline,
 (1) Rio de Janeiro (2) Sao Paulo
 (3) Goias (4) Bahira
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
80. Which one of the following is not used to measure salinity of the sea water?
 (1) Hydrometer (2) Barometer
 (3) Refractometer (4) Salinometer
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
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%
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) $(x+1)$
84. A boat takes 3 hours to travel 30km downstream and takes 5 hours to return to the same spot upstream. Find the speed of the boat in still water. (km/hr)
 (1) 10km/hr (2) 8km/hr
 (3) 6km/hr (4) 5km/hr
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
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
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

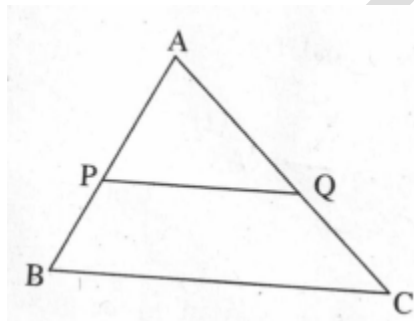
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88. The difference between the diagonals of a rhombus is 4 cm and the area of the rhombus is 96cm^2 . Then find the difference between the length of the smaller diagonal and the length of the side of the rhombus.
- (1) 2 cm (2) 3 cm
(3) 4 cm (4) 6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

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

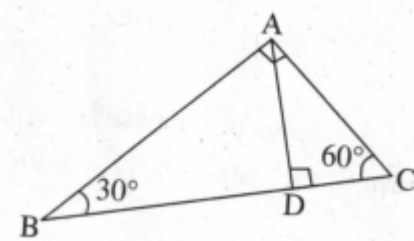
90. If $D = \begin{vmatrix} 3\sqrt{5} & 6 \\ 5 & m \end{vmatrix} = 0$ Find the value of m.
- (1) $\sqrt{5}$ (2) $4\sqrt{5}$
(3) $\sqrt{3}$ (4) $2\sqrt{5}$

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) $\frac{2-\sqrt{2}}{2}$

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) $\sqrt{3} : 2$

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) $\text{SegPA} \cong \text{SegQB}$ (2) $\text{SegPa} \parallel \text{SegQB}$
(3) SegPA and SegQB are perpendiculars (4) SegPA and SegQB will intersect each other

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

95. A pole of height 6m casts shadow of $2\sqrt{3}\text{m}$ on the ground. Find the angle of elevation to the sun.
- (1) 90° (2) 45°

- (3) 30° (4) 60°

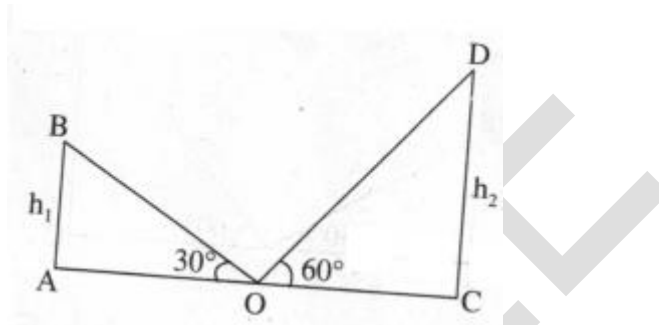
96. Which of the following are the co-ordinates of the centre of the circle that passes through P(6,-6), Q(3,-7) and R(3,3) ?

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

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

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

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

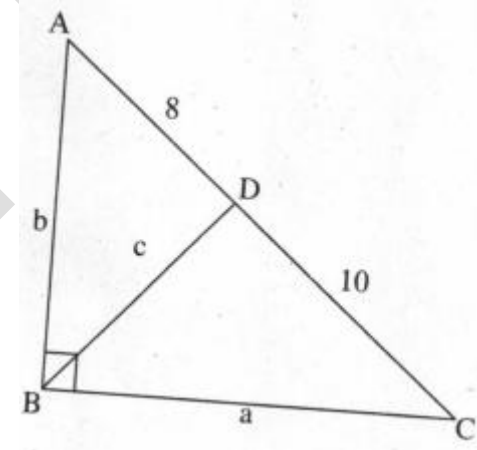


- (1) 1 : 2 (2) 2 : 3
 (3) $1 : \sqrt{3}$ (4) 1 : 3

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

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

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) $\sqrt{18}$