

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you answer the questions. Answers are to be given on the separate answer-sheet.

1. Please write your Centre Code and Seat No. very clearly (only one digit in one block). Before writing your Seat No. get it ascertained from the Centre Conductor. Please see that no block is left unfilled and even zeros appearing in the Centre Code and Seat No. are correctly transferred to the appropriate blocks on the booklet and on the answer sheet.

Example :

CENTRE CODE केन्द्र संकेतांक													
------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

SEAT NO. आसन क्रमांक																			
----------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

For all subsequent purposes your Centre Code and Seat No. shall remain the same. Centre once allotted will not be changed

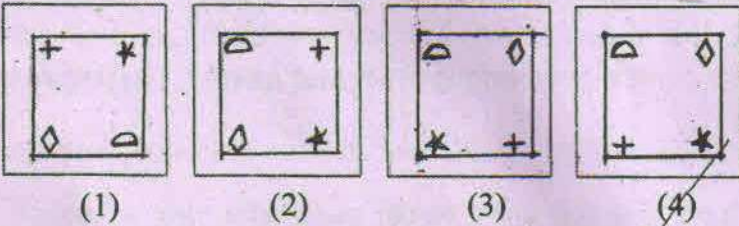
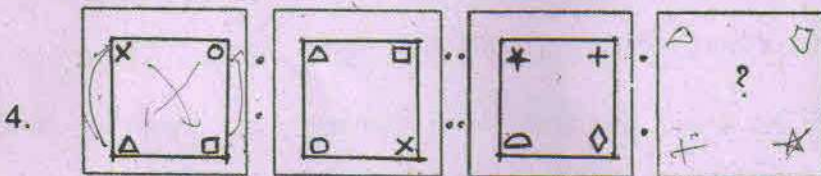
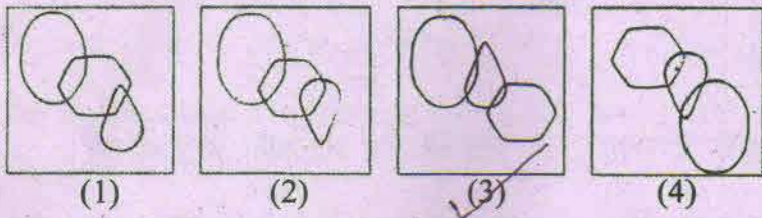
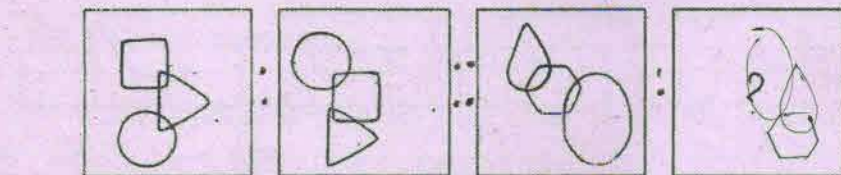
2. All questions carry **one** mark each.
3. Since **all questions are compulsory** do not try to read through the whole question paper before beginning to answer it.
4. Begin with the first question and keep on trying one question after another till you finish.
5. If you do not know the answer to any 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.
6. Since the time allotted is very short you should make best use of it. The rough work is to be done in the box given under each page.
7. Remember you have to mark on your answers in "**Mental Ability Test**" answer-sheet only.
8. Answer to each question is to be indicated in the answer-sheet by encircling with black pen provided to you in the appropriate number of alternative in the answer-sheet from amongst the ones given for the corresponding question in the test booklet.
9. Do not write anything except Centre Code, Seat No. and rough work anywhere in this booklet.
10. Now turn to the next page and start answering the questions.

Mental Ability Test

Q. 1 & 2 : Find the odd term.

1. (1) ABDEF ^{1, 2, 4, 5, 6} (2) JKMNX ^{10, 11, 13, 14, 24}
 (3) GHJKR ^{7, 8, 10, 11, 18} ✓ (4) IJLMT ^{9, 10, 12, 13, 20}
2. (1) CEG18 (2) KMO42
 ✓ (3) UWY70 (4) RTV63

Q. 3 to 5 : Direction : In the following questions there is a specific relation between the first and the second figure. The same relationship exists between the third and the fourth figure which will replace the question mark. Select the correct figure from the alternatives given below each question.

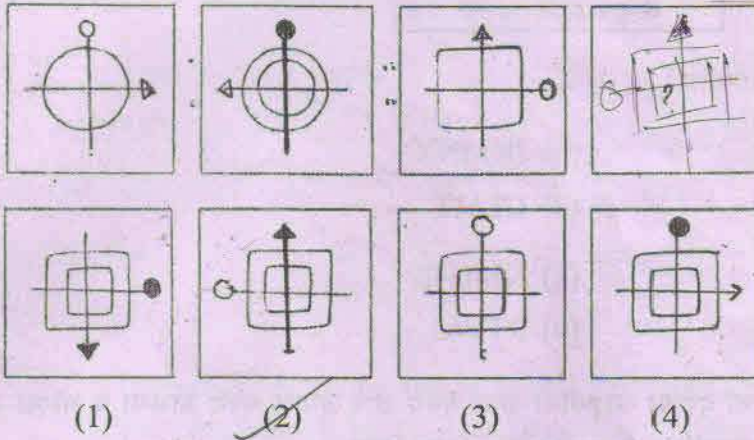


3 & 4 →
HDDP

Only for Rough Work

A	B	C	D	E	F	G	H	I	J
1	2	3	4	5	6	7	8	9	10
K	L	M	N	O	P	Q	R	S	T
11	12	13	14	15	16	17	18	19	20
U	V	W	X	Y	Z				
21	22	23	24	25	26				

5.



6. ABCDEFGHIJKLMZYXWVUTSRQPON

From the above letter series find the letter which is at the 6th position to the right side of the letter which is at the centre position of the letters which are at the 11th place from the left and 14th place from the right.

- (1) U (2) F
 (3) Y (4) L

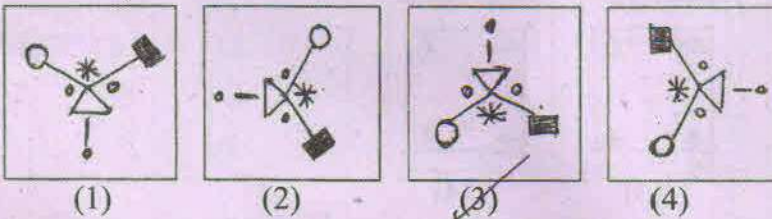
7. Direction : In the following question there is a specific relation between the first and second term. The same relationship exist between third and fourth term. Understanding the relationship find out the correct alternative to replace the question mark.

$25 : 100 :: 81 : ?$

- (1) 648 (2) 468
 (3) 864 (4) 684

Q. 8 to 10 : Direction : Find the odd figure.

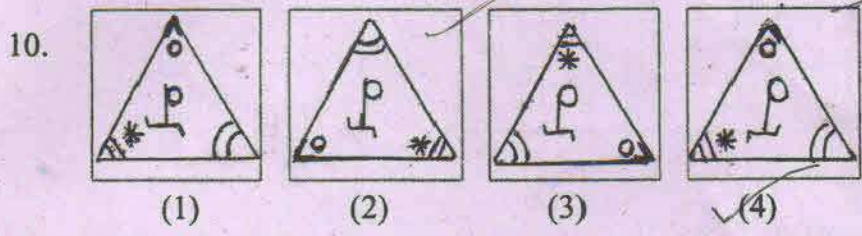
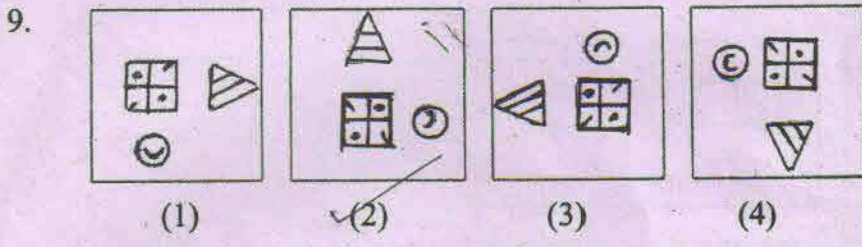
8.



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$$\begin{array}{r} 81 \\ \times 4 \\ \hline 324 \end{array}$$

$$\begin{array}{r} 81 \\ \times 8 \\ \hline 648 \\ \hline 324 \end{array}$$



Q. 11 to 14 : Direction : In each of the following questions write which term in the sequence replaces the question mark.

11. 13, 23, 43, 83, 163, ?

- (1) 326 (2) 323
(3) 321 (4) 318

12. 12, 15, 21, 24, 30, 33, ?, ?

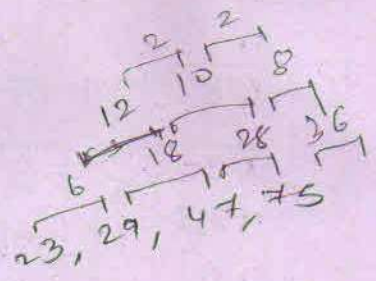
- (1) 36, 41 (2) 37, 42
(3) 38, 47 (4) 39, 51

13. 16, 40, 100, 250, ?

- (1) 575 (2) 625
(3) 425 (4) 525

14. 23, 29, 47, 75, ?

- (1) 87 (2) 93
(3) 110 (4) 117



Only for Rough Work

$3 \times 13 = 39$

$23, 29, 47, 75$

$+6$

$+18$

$+28$

93

$4 \times 25 = 100$

$16, 40, 100, 250$

$4^2 \times 2 + 20$

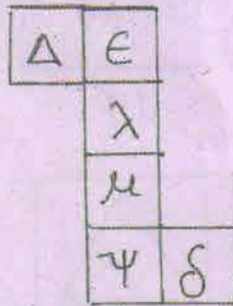
$10^2 \times 2 + 20$

$4 \overline{) 250}$

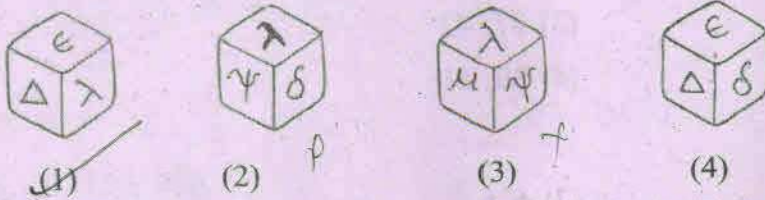
$\underline{240}$

10

Q. 15 to 17 : Direction : The adjacent figure is folded to form a cube. Observe the figure and answer the following questions.

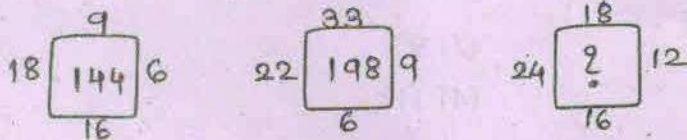


15. Which of the following symbol will not occur adjacent to ϵ ?
- (1) μ (2) δ
 (3) λ (4) ψ
16. Which of the following symbol will be on the opposite surface of the symbols λ ?
- (1) Δ (2) ψ
 (3) δ (4) μ
17. Which of the following figure obtained by folding the paper to form a cube ?



Q. 18 & 19 : Direction : There is a specific relationship between the numbers that are given in the following figures. On the basis of the relationship choose the correct alternative to replace the question mark.

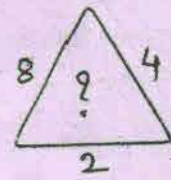
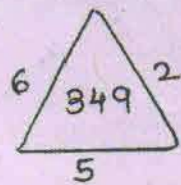
18.



- (1) 210 (2) 266
 (3) 288 (4) 318

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19.

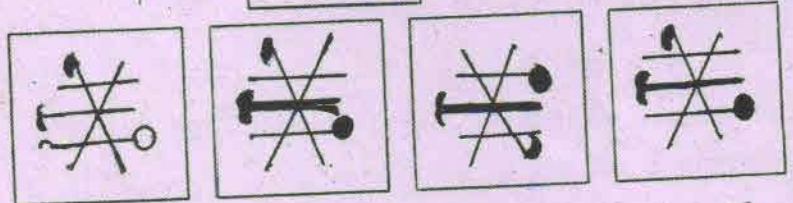
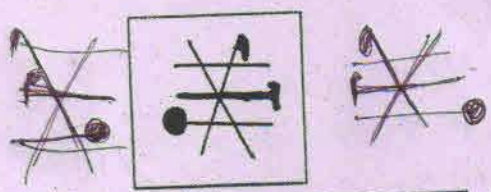


- (1) 473
- (3) 389

- (2) 623
- (4) 584

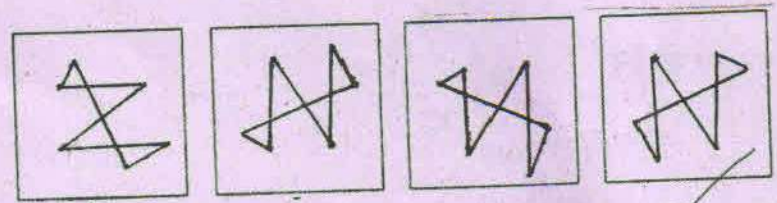
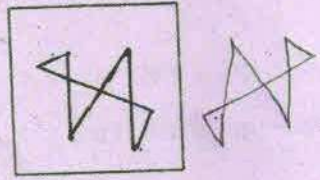
Q. 20 & 21 : Direction : Choose the mirror image from the alternatives given for the given question figure.

20.



- (1)
- (2)
- (3)
- (4) ✓

21.



- (1)
- (2)
- (3)
- (4) ✓

Only for Rough Work

$$\begin{array}{r} 41 \\ 216 \\ \hline 9 \times 16 \\ \hline 35 \end{array}$$

$$\begin{array}{r} 3 \\ 11 \overline{) 434} \\ \underline{33} \\ 104 \end{array}$$

Q. 22 to 24 : Direction : Observe the arrangement of numbers that is given below. There is a specific rule in that arrangement. Study that rule carefully and choose the correct alternative to replace the question mark.

	104	
8	85	64
	13	

22.

	154	
14	221	196
	?	

- ~~(1) 11~~
- (3) 15

- (2) 13
- (4) 17

23.

	315	
15	261	?
	21	

- (1) 125
- (3) 105

- (2) 90
- ~~(4) 225~~

24.

	?	
3	39	9
	27	

- (1) 33
- (3) 243

- ~~(2) 81~~
- (4) 42

Q. 25 to 27 : Direction : In the following questions there is a specific relation between the first and the second term. The same relationship exists between the third and the fourth term. Understanding the relationship find out the correct alternative to replace the question mark.

25. FILM : ADGH :: MILK : ?

- (1) ADGE
- (2) HDGE
- (3) HEGF
- ~~(4) HDGF~~

Only for Rough Work

$$\begin{array}{r} 27 \\ \times 3 \\ \hline 81 \end{array}$$

$$\begin{array}{r} 114 \\ \times 14 \\ \hline 56 \\ 14 \times \\ \hline 196 \end{array}$$

$$\begin{array}{r} 3 \\ \times 27 \\ \hline 21 \\ 6 \times \\ \hline 81 \end{array}$$

$$\begin{array}{r} 213 \\ \times 8 \\ \hline 104 \end{array}$$

$$\begin{array}{r} 75 \\ \times 15 \\ \hline 225 \end{array}$$

$$\begin{array}{r} 14 \overline{) 154} \\ \underline{141} \\ 13 \end{array}$$

$$\begin{array}{r} \times 13 \\ 39 \\ \hline 13 \times \end{array}$$

26. MK : $\frac{169}{121}$:: JH : ?

(1) $\frac{16}{4}$

(2) $\frac{25}{4}$

(3) $\frac{64}{100}$

(4) $\frac{121}{64}$

Handwritten notes and calculations:
 $\frac{25}{16}$
 $\frac{50}{8}$
 $\frac{100}{16}$
 $\frac{50 \times 25}{32 \times 16}$
 $\frac{1250}{512}$
 $\frac{16}{100}$
 $\times 4$
 $\frac{64}{100}$
 16, 32, 48, 64, 80, 96

27. ? : DURXQG :: POLICE : SROLFH

(1) ARMOUR

(2) AROUND

(3) GROUND

(4) SHOULD

Handwritten: AFD

Q. 28 to 30 : Direction : Meena, Sarika, Geeta and Neeta are four friends. They like different flowers. Geeta and Sarika like Marigold. Except Meena all the friends like 'Jai' Meena and Sarika like 'Champak' and 'Mogra'. Geeta likes all the flowers except 'Mogra'. Neeta does not like only 'Marigold'. Meena likes only two types of flowers then

28. Who likes all types of flowers ?

(1) Neeta

(2) Sarika

(3) Meena

(4) Geeta

Handwritten notes:
 Mee — Ch, Mog
 Sari — Ch, Mog
 Gee — ~~Ch, Mog~~ Mogro X
 Nee — Marigold X

29. Name the type of flower, that all the friends like ?

(1) Marigold

(2) Mogra

(3) Champak

(4) Jui

30. Who do not like 'Marigold' ?

(1) Meena and Sarika

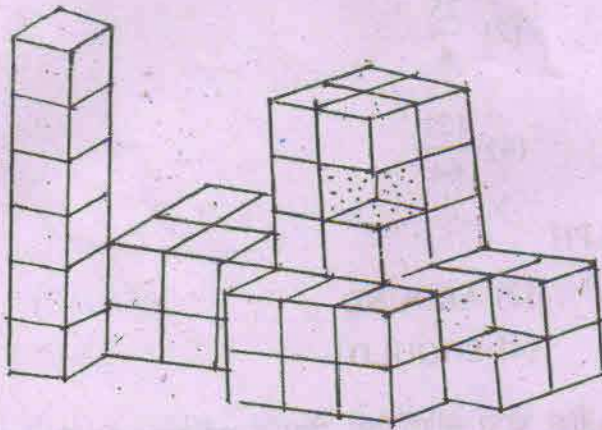
(2) Meena and Geeta

(3) Meena and Neeta

(4) Sarika and Neeta

Only for Rough Work

Q. 31 to 33 : Direction : the following figure is made by joining some cubes of size $1 \times 1 \times 1$ unit to each other. Outer surfaces of the figure are painted. Observe the figure and answer the questions by choosing the correct alternative.



6
27
33
44

31. Find the maximum number of faces of a cube that may have been painted.

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

32. Find the number of cubes having no face painted ?

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

33. How many small cubes are used to form the given figure ?

- (1) 50
- (2) 48
- (3) 52
- (4) 46

34. In a certain code language

$3 \times 2 = 29$; $4 \times 5 = 74$;
 $7 \times 3 = 58$; then , $6 \times 8 = ?$

- (1) 134
- (2) 118
- (3) 116
- (4) 132

Only for Rough Work

35. In a certain code language

$11 + 5 = 36$; $22 + 6 = 58$;

$33 + 7 = 82$; then , $55 + 9 = ?$

(1) 112

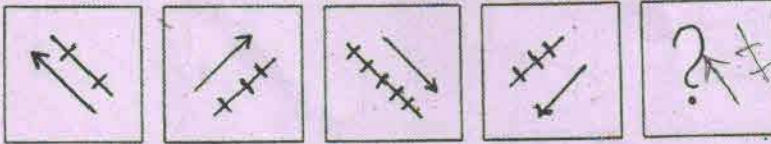
(2) 163

~~(3) 136~~

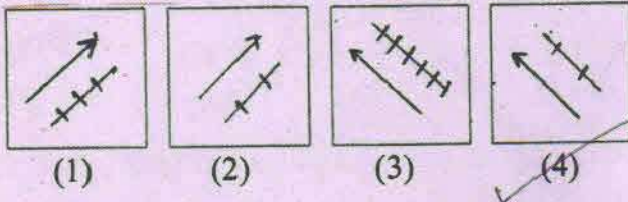
(4) 124

Q. 36 & 37 : Direction : In each of the following questions the question figure change in a particular order. Decide which figure from the given alternatives will replace the question mark.

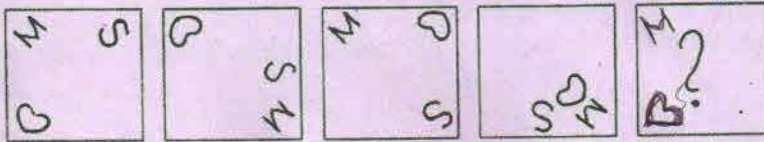
36. Question figure



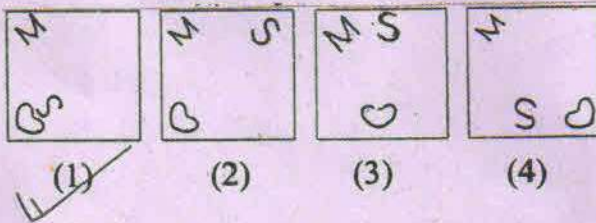
Answer figure



37. Question figure



Answer figure



Only for Rough Work

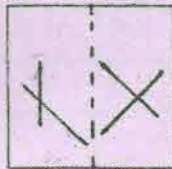
$$\begin{array}{r} 49 \\ + 33 \\ \hline 82 \end{array}$$

$$\begin{array}{r} 55 \\ + 81 \\ \hline 136 \end{array}$$

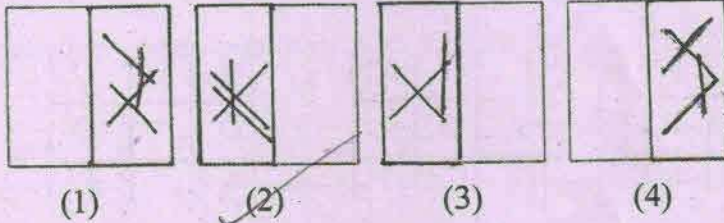
Q. 42 & 43 : Direction : In the figure given below a transparent square shaped paper is folded along the dotted lines. Which figure will be obtained ? Find the correct figure from the alternatives given.

42.

Question figure

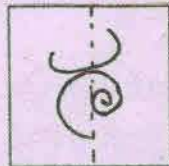


Answer figures

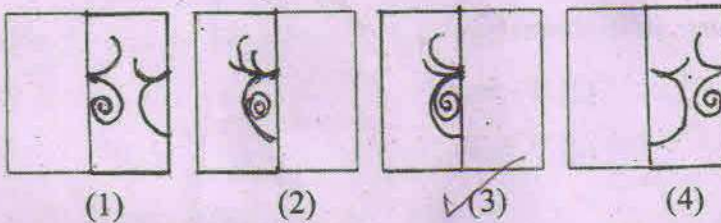


43.

Question figure



Answer figures



Q. 44 to 47 : Direction : In the following questions choose the correct term that will replace the question mark.

44. AYC, EUG, JPL, CWE, ?

(1) HRJ

(2) IQK

(3) JPL

(4) KOM

Only for Rough Work

45. NTS, OUT, PTS, ?

- (1) QWV
(3) QTP

- (2) QRS
(4) QPO

46. AMZN, BLYO, CKXP, ?

- (1) DQJW
(3) DIWR

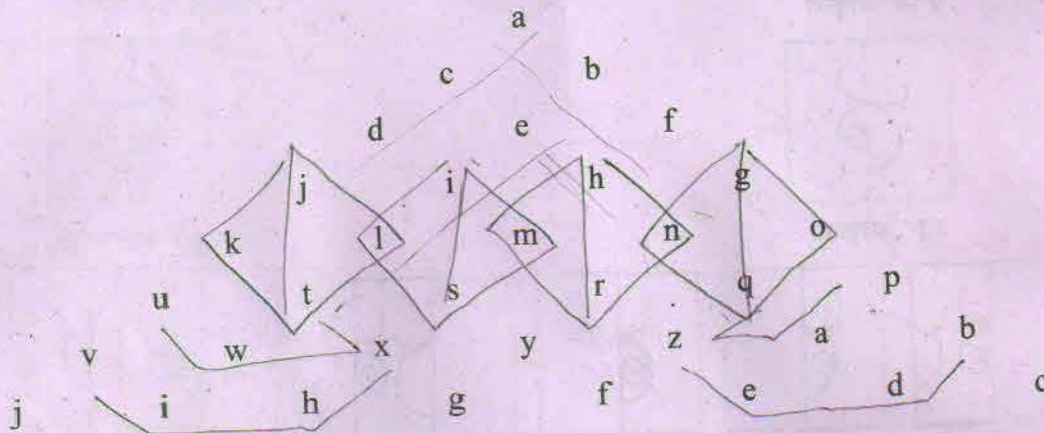
- (2) DJWQ
(4) DWJQ

47. JBY, NIV, SOS, YTP, ?

- (1) EVM
(3) FYL

- (2) BVG
(4) FXM

Q. 48 to 50 : Direction : Observe the following pyramid of letters and decide which alternative will be in place of question mark in each of the following question.



h n r m h r

48. ~~acdj : ? :: eilt : ehmq~~

- ~~(1) abfg~~ (2) acdi (3) acei (4) abfh

49. vihx : uwxt :: ? : pazq

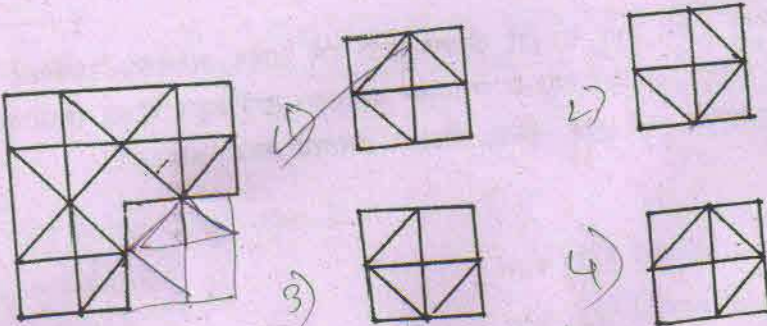
- (1) abde (2) bdez (3) dbaz (4) azed

50. jktljt : goqngq :: ilsmis : ?

- (1) hnrnmr (2) hnrnmr (3) hnrnmh (4) hrmnhn

Only for Rough Work

55.



Q. 56 & 57 : Direction : In each of the following questions write which symbol in the sequence will replace the question mark.

56. $\Delta \square \oplus$, $\square \oplus \Delta$, $\oplus \Delta \square$, ?

(1) $\oplus \Delta \square \square$

(2) $\oplus \Delta \square \square$

(3) $\oplus \square \Delta$

(4) $\oplus \square \Delta \square$

57. $\alpha \eta \theta \lambda$, $\lambda \alpha \eta \theta$, $\theta \lambda \alpha \eta$, ? $\eta \theta \lambda \alpha$

(1) $\eta \theta \lambda \alpha$

(2) $\eta \theta \lambda \alpha$

(3) $\eta \theta \lambda \alpha \eta$

(4) $\eta \theta \lambda \alpha \eta$

Q. 58 & 59 : Direction : Ten years ago the ratio of the ages of Ramesh and Suresh was 1 : 5. Ten years hence the ratio of their ages will be 3 : 5 then

58. Find the present age of Ramesh ?

(1) 14 years

(2) 10 years

(3) 40 years

(4) 24 years

59. How old was Suresh ten years ago ?

(1) 9 years

(2) 20 years

(3) 40 years

(4) 30 years

Only for Rough Work

$$\frac{(x-10)(5y-10)}{(3x+10)(5y+10)} = \frac{2+10}{5+10}$$

Q. 60 & 61 : Direction : In a queue, Suneeta is at the tenth place from front. Subhash is at 25th place from behind. Gargi is standing at the central place between Suneeta and Subhash. There are 50 persons in the queue. Then

60. Gargi is standing at which place from front ?

- (1) 20 (2) 19
~~(3) 18~~ (4) 17

61. Gargi is at which place from behind ?

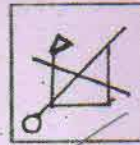
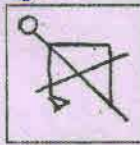
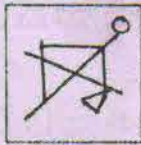
- (1) 31 (2) 32
~~(3) 33~~ (4) 34

Q. 62 & 63 : Direction : Choose the correct water image from the given alternatives for the given question figure.

62. Question figure



Answer figures



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

63. Question figure



Answer figures



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

Q. 64 & 65 : Direction : In the following questions in every row the numbers outside the bracket are related to the number inside the bracket in a specific manner. From the given alternatives choose the number that will replace the question mark.

64. 37 (46) 60
 121 (74) 158
 318 (?) 269

- (1) 184 (2) 248
 (3) 98 (4) 79

Only for Rough Work

$$\begin{array}{r} 37 \times 2 = 74 \\ 74 + 59 = 133 \\ 133 + 269 = 402 \end{array}$$

$$\begin{array}{r} 121 \times 2 = 242 \\ 242 + 59 = 301 \\ 301 + 269 = 570 \end{array}$$

$$\begin{array}{r} 318 \times 2 = 636 \\ 636 + 59 = 695 \\ 695 + 269 = 964 \end{array}$$

65. 35 (36) 73
 64 (38) 27
 43 (?) 58

(1) 39

(2) 52

(3) 101

(4) 119

Q. 66 to 68 : Direction : In the following questions a specific group of terms is given. From the given alternatives, find out the correct term that matches the given group.

66. JGDA ZWTQ UROL

(1) LIGD

(2) SPMK

(3) LIFC

(4) NKHF

67. AGM DJP HNT

(1) GNT

(2) EKP

(3) IOV

(4) KQW

68. BFYU GKTP FJUQ

(1) AEZW

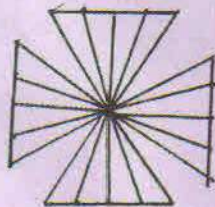
(2) DHWS

(3) IMRO

(4) CGXS

Q. 69 & 70 : Direction : Find the number of triangles in the following figures.

69.



Handwritten notes:
 a x n
 32

(1) 16

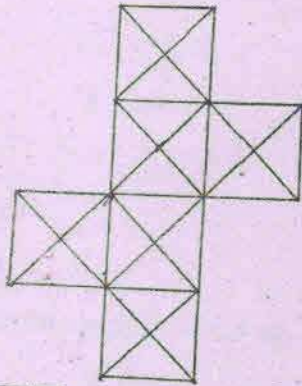
(2) 32

(3) 40

(4) 80

Only for Rough Work

70.



- (1) 48
- (2) 50
- (3) 58
- (4) 62

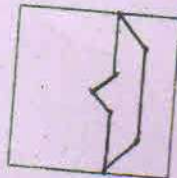
Q. 71 to 73 : Direction : In certain code languages the word PACK is written in four different code languages. Understanding the code, find out the correct code language for the word given in each of the following questions.

- PACK = (1) TEGO
 (2) MXZH
 (3) VFGO
 (4) QDHR

71. RAIN = NXFK
 72. CROP = DUTW
 73. SAND = WERH

Q. 74 & 75 : 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.

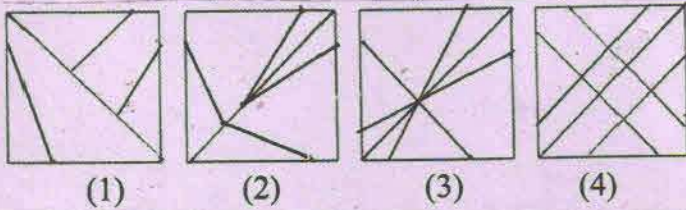
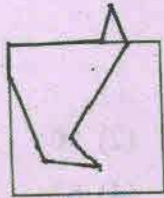
74.



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

Only for Rough Work

75.



Q. 76 & 77 : Direction : A rhythmic arrangement of alphabet is given. The missing alphabet appears in the same order in one of the alternative answer, choose the correct alternative.

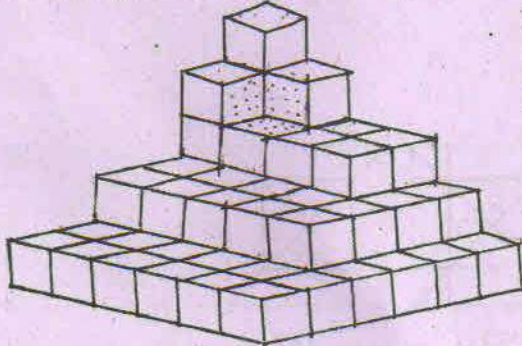
76. a b c c a b b c a a b c

- (1) ~~acb~~ (2) bab
- (3) aba (4) aac

77. a b b a b a a b a b b a b a a b

- (1) abab (2) ccac
- (3) aabb (4) ~~abba~~

Q. 78 to 80 : Direction : The following figure is made by arranging some cubes having each side 1 unit. The figure is painted from all the sides. Observe the figure and answer the questions by choosing the correct alternative.



Only for Rough Work

78. How many cubes are there at the base level ?

(1) 18

(2) 24

~~(3) 36~~

(4) 216

79. How many cubes are there having three faces painted ?

(1) 8

✓ (2) 10

(3) 15

(4) 20

80. How many cubes are there having no face painted ?

(1) 3

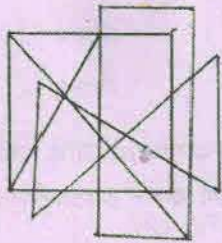
(2) 2

(3) 0

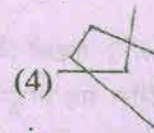
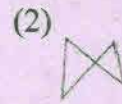
✓ (4) 4

Q. 81 & 82 : Direction : In the given question figure a complex figure is given. Find out which of the figure given in the alternatives is hidden in the complex figure ?

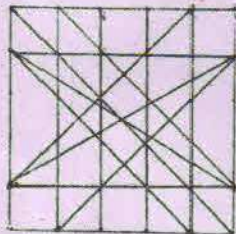
81. Question figure



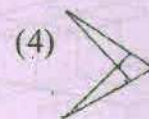
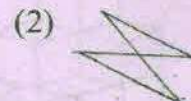
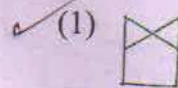
Answer figures



82. Question figure



Answer figures



Only for Rough Work

Q. 83 to 85 : Direction : In the following questions a specific group of numbers is given. From the given alternatives, choose the correct alternative that matches the given group.

83. 78 26 54

(1) 52

(2) 6

(3) -6

(4) 31

84. 738 4930 2210

(1) 1341

(2) 6877

(3) 222

(4) 518

85. 41 21 69













(1) 89

(2) 87

(3) 107

(4) 105

Q. 86 & 87 : Direction : In the following questions symbol are given in column I and are coded in coloum II. But they are not arranged according to the order of symbols in column I. Find the code language and choose the correct alternative to answer the questions.

Column I	Column II
  	378
  	459
  	275
  	814

86.    = ?

(1) 143

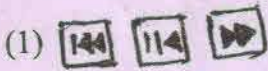
(2) 237

(3) 549

(4) 943

Only for Rough Work

87. 135 = ?



88. Observe the following code language and choose the correct alternative to answer the question.

Letters →	E	L	O	A	U	K	T	P	S	J
Digit →	0	8	2	7	6	3	4	5	9	1

947580 = ?

STAPLE

(1) SATPLE

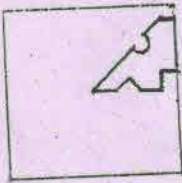
✓ (2) STAPLE

(3) STALPE

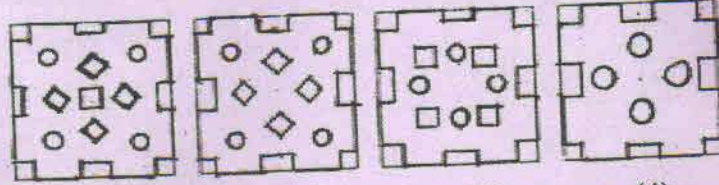
(4) SATLPE

Q. 89 & 90 : Direction : A square place of paper is folded and cut at specific spots as shown in the figure. The paper when unfolded will look like as shown in one of the alternative

89. Question figure



Answer figures



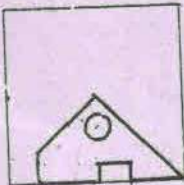
(1)

✓ (2)

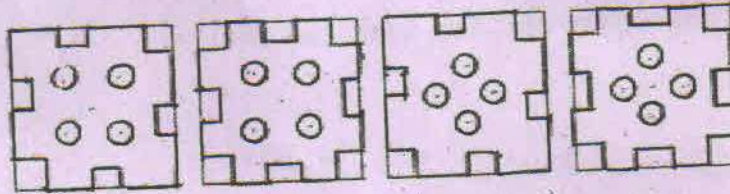
(3)

(4)

90. Question figure



Answer figures



(1)

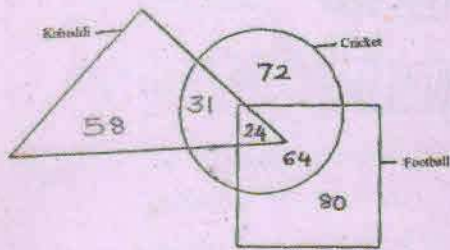
(2)

✓ (3)

(4)

Only for Rough Work

Q. 91 to 93 : Direction : Observe the following venn diagram and choose the correct alternative to answer the question.



91. How many players play only kabaddi and cricket ?

- (1) 24
(3) 58

(2) 72

(4) 31

$$\begin{array}{r} 58 \\ + 72 \\ + 80 \\ \hline 210 \end{array}$$

92. How many players play only one game ?

- (1) 151
(3) 183

(2) 216

(4) 210

93. How many players do not play cricket and football ?

- (1) 24
(3) 64

(2) 58

(4) 72

94. In a mathematical language if Δ means $+$, \odot means \times , \square means $-$ and \triangleleft means \div then find the value of the following expression $3 \odot 5 \square 18 \triangleleft 3 \odot 2 \Delta 3 = ?$

(1) -6

(3) 6

(2) 0

(4) -3

$$3 \times 5 - 18 \div 3 \times 2 + 3$$

$$15 - 6 + 3$$

95. In a mathematical language if \div means $+$, $+$ means \times , \times means $-$ and $-$ means \div then find the value of the following expression $4 \div 8 - 2 + 5 \times 7 = ?$

(1) 33

(3) 17

(2) 23

(4) -4

$$4 + 8 \div 2$$

$$4 + 4 = 8$$

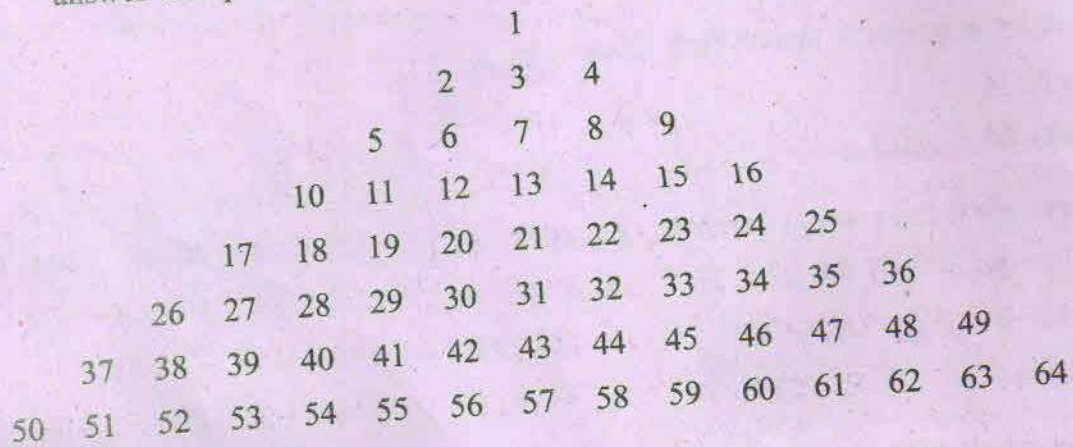
Only for Rough Work

Q. 96 & 97 : In the following table the digits are assigned with certain symbols. Observe them carefully and choose the correct alternative to answer the questions.

Digits	9	8	7	6	5	4	3	2	1	0
Symbol	₹	?	!)	%	(\$	#	Δ	^

96. How will you write the number 8 7 4 6 0 5 3 ?
- (1) ? !) (% ^ \$
 (2) ! ?) (% ^ \$
 (3) ? ! () ^ % \$
 (4) ! ? () ^ % \$
96. Which number will be expressed by the code (% ! \$ ₹) Δ # ?
- (1) 4 7 5 9 3 6 1 2
 (2) 4 5 7 3 9 6 1 2
 (3) 4 7 5 3 9 6 1 2
 (4) 4 5 7 9 3 6 1 2

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



98. 52262839 : 62363447 :: 54283041 : ?
- (1) 60343245
 (2) 54283042
 (3) 60343244
 (4) 60463244

Only for Rough Work

99. 2567 : 4987 :: 7256 : ?

(1) 7894

(3) 7498

(2) 7489

(4) 7948

100. 61820 : 82422 :: 121920 : ?

(1) 142223

(3) 191220

(2) 231524

(4) 142322

Only for Rough Work

SCHOLASTIC APTITUDE TEST (ENGLISH)

NTS-X-S5

NATIONAL TALENT SEARCH EXAMINATION, 2018-19

राष्ट्रीय प्रज्ञा शोध परीक्षा, 2018-19

CENTRE CODE केन्द्र संकेतांक

2	1	1	9		
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SEAT NO. आसन क्रमांक

E	2	3	9	1	9	2	1	1	9	3	8	4
---	---	---	---	---	---	---	---	---	---	---	---	---

STATE LEVEL EXAMINATION - QUESTION BOOKLET

राज्यस्तरीय परीक्षा - प्रश्नपुस्तिका

SCHOLASTIC APTITUDE TEST

शालेय क्षमता चाचणी

CLASS X / इयत्ता १०वी

MEDIUM : - ENGLISH WITH MARATHI VERSION

[Date : 4th NOVEMBER, 2018]

[Time : 13:30 P.M. to 15:30 P.M.]

[वेळ : 13:30 P.M. ते 15:30 P.M.]

Maximum Marks : 100

एकूण गुण : 100

Total Pages : 48

एकूण पाने: 48

Time : 120 Minutes

120 मिनिटे

T-18 X S5

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you answer the questions. Answers are to be given on the separate answer-sheet.

1. Please write your Centre Code and Seat No. very clearly (only one digit in one block). Before writing your Seat No. get it ascertained from the Centre Conductor. Please see that no block is left unfilled and even zeros appearing in the Centre Code and Seat No. are correctly transferred to the appropriate blocks on the booklet and on the answer sheet.

Example :

CENTRE CODE केन्द्र संकेतांक																				
SEAT NO. आसन क्रमांक																				

For all subsequent purposes your Centre Code and Seat No. shall remain the same. Centre once allotted will not be changed

2. All questions carry **one** mark each.
3. Since **all questions are compulsory** do not try to read through the whole question paper before beginning to answer it.
4. Begin with the first question and keep on trying one question after another till you finish.
5. 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.
6. Since the time allotted is very short you should make best use of it. The rough work is to be done in the box given under each page.
7. Remember you have to mark on your answers in "**Scholastic Aptitude Test**" answer-sheet only.
8. Answer to each question is to be indicated in the answer-sheet by encircling with black pen provided to you in the appropriate number of alternative in the answer-sheet from amongst the ones given for the corresponding question in the test booklet.
9. Do not write anything except Centre Code, Seat No. and rough work anywhere in this booklet.
10. Now turn to the next page and start answering the questions.

परीक्षार्थीसाठी सूचना

प्रश्नांची उत्तरे देण्यापूर्वी पुढील सूचना काळजीपूर्वक वाचा. तुमची उत्तरे स्वतंत्र उत्तरपत्रिकेवर लिहावयाची आहेत.

- कृपया तुमचा केंद्र संकेतांक आणि आसन क्रमांक आकड्यामध्ये सुस्पष्ट लिहा. (एका चौकटीत एकच अंक या प्रमाणे) स्वतःचा आसन क्रमांक लिहिण्यापूर्वी तो बरोबर असल्याची खात्री करून घ्या. कोणताही रकाना रिक्त राहणार नाही याची दक्षता घ्या. प्रश्नपुस्तिका व उत्तरपत्रिका यांचे वरील चौकटीत आसन क्रमांक व केंद्र संकेतांक यातील प्रत्येक अंक आणि शून्यसुद्धा योग्य जागी लिहा.

उदाहरणार्थ :

CENTRE CODE केंद्र संकेतांक																			
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SEAT NO. आसन क्रमांक																				
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- प्रत्येक प्रश्नाला एक गुण आहे.
- सर्व प्रश्न सोडविणे आवश्यक आहेत.
- पहिल्या प्रश्नापासून सुरुवात करा आणि एकामागून एक प्रश्न सोडवीत शेवटपर्यंत प्रश्न सोडवा.
- एखाद्या प्रश्नाचे उत्तर येत नसेल तर त्यावर जास्त वेळ घालवू नका. पुढचे प्रश्न सोडविण्यास घ्या. सर्व प्रश्न सोडवून झाल्यावर उरलेल्या वेळत राहून गेलेल्या प्रश्नांवर तुम्हाला पुन्हा विचार करता येईल.
- प्रश्न सोडविण्यासाठी तुम्हाला मिळणारा वेळ विचारात घेऊन त्याचा जास्तीत जास्त चांगल्याप्रकारे उपयोग करा. कच्चे काम प्रत्येक पृष्ठावर दिलेल्या चौकटीतच करावयाचे आहे.
- लक्षात ठेवा तुम्हाला उत्तरे नोंदविण्यासाठी “शालेय क्षमता चाचणी” (Scholastic Aptitude Test) चीच उत्तरपत्रिका मिळाली आहे याची खात्री करा.
- प्रत्येक प्रश्नाच्या उत्तरासाठी प्रश्नपुस्तिकेमध्ये पर्याय दिले आहेत. त्यापैकी तुम्हाला योग्य वाटेल त्या पर्यायाचा क्रमांक पहा व त्या क्रमांकाच्या वर्तुळात तुम्हाला दिलेल्या पेनाचा वापर करून ते वर्तुळ रेखांकित (काळे) करून उत्तर द्या. मात्र हे काम तुमच्या उत्तरपत्रिके बरोबर जोडलेल्या OMR Sheet वर योग्य प्रश्नापुढे करावयाचे आहे प्रश्नपुस्तिकेवर नाही.
- कृपया या पुस्तिकेत केंद्र संकेतांक आणि आसन क्रमांक व कच्चे काम याखेरीज अन्य काहीही लिहू नका.
- आता प्रश्नांची उत्तरे देण्यास सुरुवात करा.

Scholastic Aptitude Test

1. Value of acceleration due to gravity on earth is maximum at

(1) poles

(2) equator

(3) depth of 60 km below earth's surface (4) height of 400 km above earth's surface

2. Magnetic field due to current through a is similar to magnetic field produced by a bar magnet.

(1) circular loop of conducting wire

(2) rectangular loop of conducting wire

(3) solenoid

(4) thick copper wire

3. Choose the wrong statement related to refraction of light

(1) Twinkling of stars

(2) Oval shape of sun in morning and evening

(3) Object in water appears bigger in size

(4) Red light undergoes dispersion, while passing through prism

4. How much time the satellite will take to complete one revolution around the earth, if velocity of satellite is 3.14 km/s and its height above earth's surface is 3600 km. (Radius of earth is 6400 km)

(1) 2000 S

(2) 20000 S

(3) 1000 S

(4) 10000 S

$$3.14 = \frac{2 \times \frac{22}{7} \times 10000}{7}$$

$$x = 20000$$

5. A planet in an orbit sweeps out an angle of 160° from March - May, When it is at an average distance of 140 million km from sun. If the planet sweeps out an angle of 10° from October - December, then the average distance from sun is

(1) 56×10^5 km

(2) 56×10^6 km

(3) 56×10^7 km

(4) 56×10^8 km

$$56000000$$

$$\frac{a_2 - 140 - 160}{a_2 - x} = \frac{10}{160}$$

$$160^\circ \cdot 140 \text{ m}^2$$

$$10^\circ \cdot x^2 = 140 \times 10^5$$

$$84 + 160$$

1. पृथ्वीवरील गुरुत्व त्वरणाचे मूल्य सर्वात जास्त आहे.
 - (1) ध्रुवावर
 - (2) विषुववृत्तावर
 - (3) पृथ्वीच्या पृष्ठभागापासून 60 km खोलावर
 - (4) पृथ्वीच्या पृष्ठभागापासून 400 km उंचीवर
2. मधून जाणाऱ्या विद्युतधारेमुळे निर्माण होणारे चुंबकीय क्षेत्र चुंबकपट्टीमुळे तयार होणाऱ्या चुंबकीय क्षेत्राप्रमाणेच असते.
 - (1) विद्युत वाहक तारेच्या वेटोळ्या
 - (2) विद्युतवाहक तारेच्या आयताकृती रचने
 - (3) नालकुंतला
 - (4) तांब्याच्या जाड तारे
3. प्रकाशाच्या अपवर्तनासंबंधीचे चुक. विधान निवडा.
 - (1) ताऱ्यांचे लुकलुकणे.
 - (2) सूर्योदय व सूर्यास्ताच्या वेळी सूर्याचा आकार अंडाकृती होणे.
 - (3) पाण्यातील वस्तूचा आकार मोठा भासणे.
 - (4) काचेच्या लोलकातून जाणाऱ्या लाल रंगाचे प्रकाश किरणांचे अपस्करण होणे.
4. जर उपग्रहाचा वेग 3.14 km/s आणि भूपृष्ठापासूनची उंची 3600 km असेल तर उपग्रहाला एक परिक्रमा पूर्ण करण्यास किती अवधी लागेल ? (पृथ्वीची त्रिज्या 6400 km आहे.)
 - (1) 2000 S
 - (2) 20000 S
 - (3) 1000 S
 - (4) 10000 S
5. मार्च ते मे या कालावधीत सूर्यापासून सरासरी 140 दशलक्ष km अंतरावरील एका ग्रहाने 160° कक्षेतून व्यापन केले आहे. जर तो ग्रह ऑक्टोबर ते डिसेंबर या कालावधीत 10° कक्षेतून व्यापन करित असेल तर त्या ग्रहाचे या कालावधीतील सरासरी अंतर आहे.
 - (1) 56×10^5 km
 - (2) 56×10^6 km
 - (3) 56×10^7 km
 - (4) 56×10^8 km

6. Observing the following table, choose the correct alternative

Column I		Column II	
A		(i)	Image formed by concave lens
B		(ii)	Image formed by convex lens with object at 2F
C		(iii)	Image formed by convex lens with object beyond 2 F
D		(iv)	Image formed by convex lens with object within focal length

In Column I AB - principal axis of lens, O - point object, I - point image. Match the two Columns.

(1) A - (i), B - (ii), C - (iii), D - (iv) ✓ (2) A - (iii), B - (i), C - (iv), D - (ii)

(3) A - (iv), B - (iii), C - (ii), D - (i) ✗ (4) A - (ii), B - (iv), C - (i), D - (iii)

7. How much heat energy in Joules is necessary to raise the temperature of 5 kg of water from 20° to 100°?

(1) 1672 KJ

✓ (2) 167200 J

(3) 16720 J

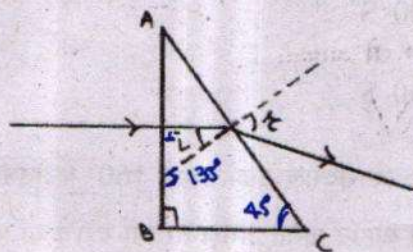
(4) 1672 J

$$5 \times 1 \times \Delta 80$$

$$418 \quad 400$$

$$\frac{16732}{4}$$

8.



A ray falls on a prism ABC ($AB = BC$) and travels as shown in figure. If refractive index of glass with respect to air is 1.5, find $\sin r$

(1) $\frac{3}{\sqrt{2}}$

$i = 45^\circ$

✗ (2) $\frac{3}{2\sqrt{2}}$

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

(4) $\frac{2\sqrt{2}}{3}$

$$1.5 = \frac{\sin i}{\sin r}$$

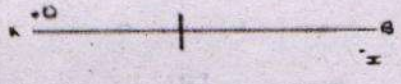
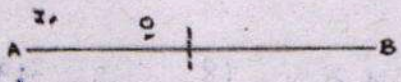
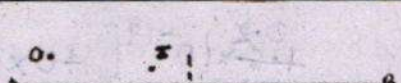
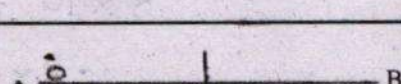
$$\frac{1}{1.5} = \frac{\sin i}{\sin r}$$

$$\frac{1}{\frac{3}{2}} = \frac{\sin 45^\circ}{\sin r}$$

$$\frac{2}{3} = \frac{\frac{1}{\sqrt{2}}}{\sin r}$$

$$\sin r = \frac{3}{2\sqrt{2}}$$

6. खालील तक्त्याचे निरीक्षण करा, जोड्या जुळवून योग्य पर्याय निवडा.

स्तंभ I		स्तंभ II	
A		(i)	आंतर्वळ भिंगाद्वारे मिळणारी प्रतिमा
B		(ii)	2F अंतरावरील पदार्थाची बहिर्वक्र भिंगाद्वारे मिळणारी प्रतिमा
C		(iii)	2F पलीकडील पदार्थाची बहिर्वक्र भिंगाद्वारे मिळणारी प्रतिमा
D		(iv)	नाभीय अंतरापेक्षा कमी अंतरावरील पदार्थाची बहिर्वक्र भिंगाद्वारे मिळणारी प्रतिमा

(स्तंभ I मध्ये, AB - भिंगाचा मुख्य अक्ष, O - पदार्थ बिंदू, I - प्रतिमा बिंदू)

(1) A - (i), B - (ii), C - (iii), D - (iv) (2) A - (iii), B - (i), C - (iv), D - (ii)

(3) A - (iv), B - (iii), C - (ii), D - (i) (4) A - (ii), B - (iv), C - (i), D - (iii)

7. 5 kg वस्तुमानाच्या पाण्याचे तापमान 20°C पासून 100°C पर्यंत वाढविण्यास किती ज्यूल उष्णता पुरवावा लागेल ?

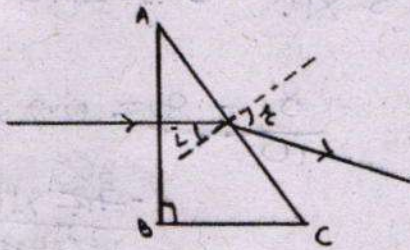
(1) 1672 KJ

(2) 167200 J

(3) 16720 J

(4) 1672 J

8.



एक प्रकाश किरण काचेच्या दोलक ABC वर पडतो ($AB = BC$) आणि तो आकृती प्रमाणे प्रवास करतो. जर काचेचा हवासापेक्ष अवर्तनांक 1.5 आहे, $\sin r$ शोधा.

(1) $\frac{3}{\sqrt{2}}$

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

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

(4) $\frac{2\sqrt{2}}{3}$

9. In a Helium gas discharge tube every second 40×10^{18} He^+ (ions) move towards the right through a cross-section of the tube, while n electrons move to the left in the same time. If the current in the tube is 8A towards right then $n = ?$

(1) 3×10^{18}

(2) 3×10^{19}

(3) 3×10^{20}

(4) 3×10^{21}

$$40 \times 10^{18} \times 1.6 \times 10^{-19} - n \cdot 1.6 \times 10^{-19} = 8$$

$$40 \times 10^{18} \times 1.6 \times 10^{-19} + n \cdot 1.6 \times 10^{-19} = 8$$

$$0.2 \times 10^{-19} [40 \times 10^{18} + n] = 8$$

$$8 \times 10^{-1} = -n \cdot 0.2 \times 10^{-19}$$

10. Device/devices changing electrical energy into mechanical energy is/are $-8 \times 10^{18} = 0.2n$

I Electric generator

II Electric motor

III Voltmeter

IV Ammeter

(1) I and II

(2) II and III

(3) II, III and IV

(4) only II

$$\frac{8}{0.2}$$

$$40 \times 10^{18} \times 1.6 \times 10^{-19} - n \cdot 1.6 \times 10^{-19} = 8$$

$$0.2 \times 10^{-19} (40 \times 10^{18} - n) = 8$$

11. A convex lens produces an image of an object on a screen with a magnification of $\frac{1}{2}$. When

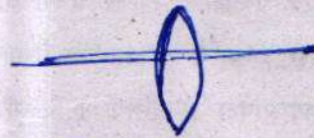
the lens is moved 30 cm away from the object, the magnification of the image is 2. The Focal length of the lens is

(1) 20 cm

(2) 25 cm

(3) 30 cm

(4) 35 cm



$$\frac{v}{u} = \frac{1}{2}$$

$$\frac{v}{\frac{u+30}{2}} = 2$$

$$8 \times 10^{-1} - 0.2 \times 10^{-19} n = 8$$

$$\frac{8}{10} - 80 = 0.2 \times 10^{-19}$$

$$\frac{360}{10 \times 0.2} \times 10^{18}$$

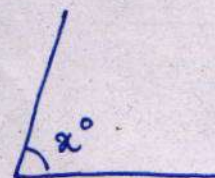
12. Two plane mirrors at an angle (x°) produces 5 images of a point. The number of images produced when x° is decreased to $(x-30)^\circ$ is

(1) 9

(2) 10

(3) 11

(4) 12



$$\frac{360}{x^\circ} = 8$$

$$\frac{360}{x-30} = ?$$

9. हेलीअम वायू विद्युन्मोच नलीकेच्या काटछेदातून प्रत्येक सेकंदाला डावीकडून उजवीकडे 40×10^{18} He⁺ (आयन) वाहतात, त्याच वेळी उजवीकडून डावीकडे 'n' इतके इलेक्ट्रॉन प्रवाहित होतात. तर नलीकेतील विद्युत्प्रवाह उजव्या दिशेने 8 A इतका असेल तर n = ?

(1) 3×10^{18}

(2) 3×10^{19}

(3) 3×10^{20}

(4) 3×10^{21}

$2v = f$

10. विद्युतऊर्जेचे यांत्रिक ऊर्जेत रूपांतर करणारे उपकरण / उपकरणे आहे / आहेत.

I विद्युत जनित्र

II विद्युत मोटार

III व्होल्टमापी

IV अॅमीटर

(1) I व II

(2) II व III

(3) II, III व IV

(4) फक्त II

$\frac{1}{v} + \frac{1}{u} = -\frac{1}{f}$

$\frac{2}{v} + \frac{1}{u} = \frac{1}{v_1} - \frac{1}{30+u}$

$\frac{0}{u} - \frac{1}{u} = -\frac{1}{f}$

$u = +f \frac{1}{30+u} \frac{1}{u} =$

$\left(\frac{30+u+0}{(30+u)u} \right)^{-1} = \frac{1}{u}$

11. एका पदार्थाचे बहिर्वक्र भिंगामुळे पडद्यावरील प्रतिमेचे विशालन $\frac{1}{2}$ केले जाते. जर भिंग पदार्थापासून 30 cm अंतरातून

दूर नेले तर प्रतिमेचे विशालन 2 होते. तर त्या भिंगाचे नाभीय अंतर आहे.

(1) 20 cm

(2) 25 cm

(3) 30 cm

(4) 35 cm

12. दोन सपाट आरशातील कोन (x°) मुळे एका बिंदूच्या 5 प्रतिमा तयार होतात. जेव्हा x° कोन $(x-30)^\circ$ ने कमी केला जातो तेव्हा प्राप्त होणाऱ्या प्रतिमांची संख्या आहे

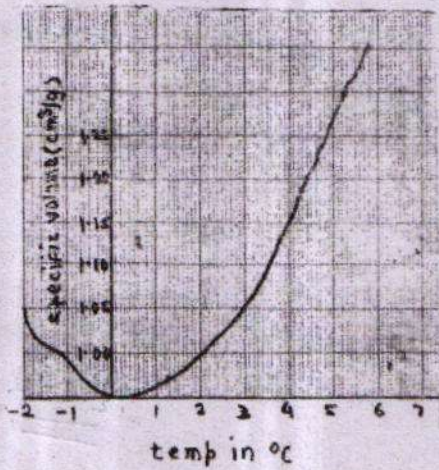
(1) 9

(2) 10

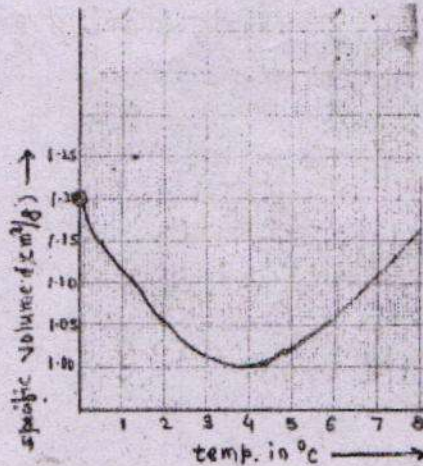
(3) 11

(4) 12

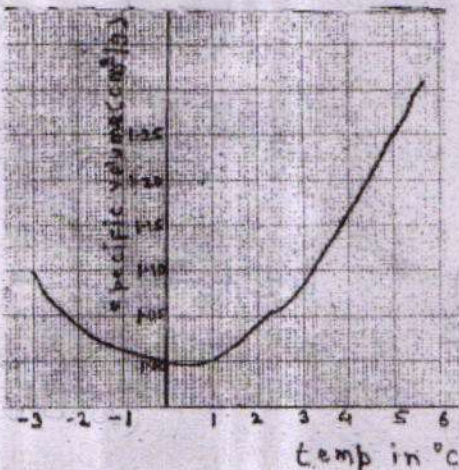
13. Choose the correct diagram (graph) showing anomalous behaviour of water.



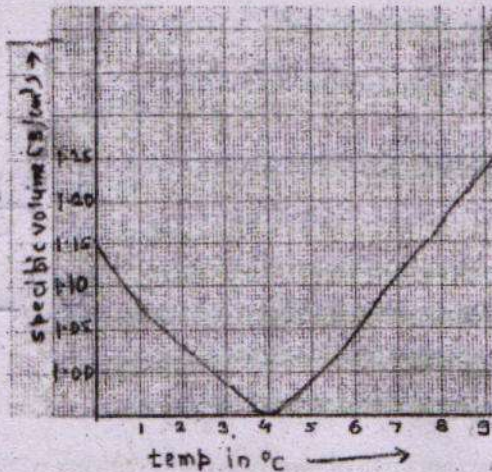
(1)



(2)



(3)



(4)

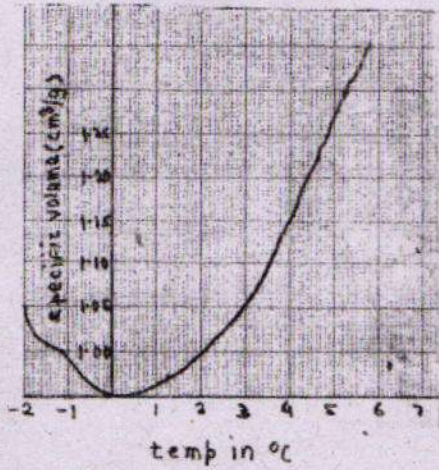
14. In which year National Chemical laboratory Pune was established ?

- (1) 1950
- (2) 1995
- (3) 2005
- (4) 1989

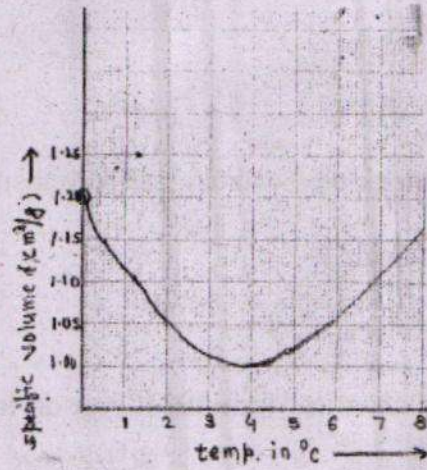
15. Which is the chemical formula of red oxide ?

- (1) Fe_2O_3
- (2) FeO_3
- (3) FeO
- (4) FeO_2

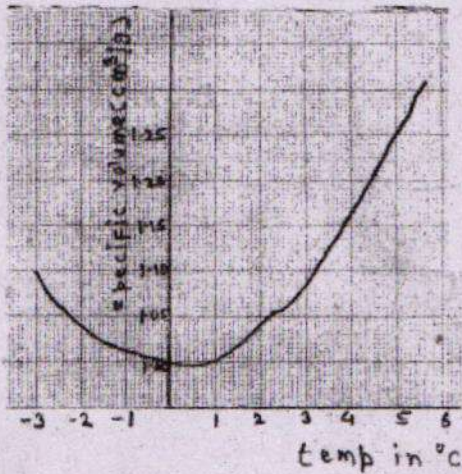
13. पाण्याच्या आसंगत आचरणाला दर्शविणाऱ्या आकृती (आलेख)ला निवडा



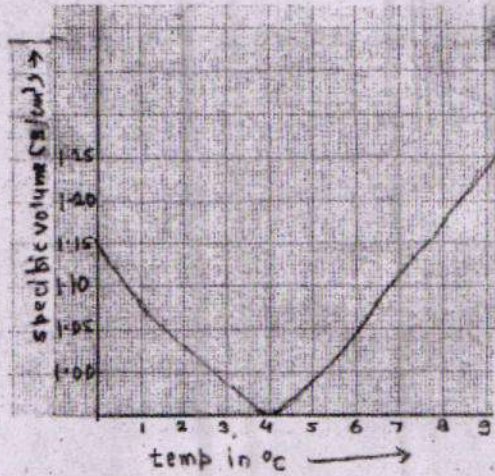
(1)



(2)



(3)



(4)

14. राष्ट्रीय रासायनिक प्रयोगशाळा पुणे या प्रयोगशाळेची स्थापना कोणत्या साली झाली ?

(1) 1950

(2) 1995

(3) 2005

(4) 1989

15. रेड ऑक्साइडचे रासायनिक सूत्र कोणते ?

(1) Fe_2O_3

(2) FeO_3

(3) FeO

(4) FeO_2

16. In water purification Fullerene is used as
- (1) Fuel (2) Insulator
(3) Catalyst (4) Reductant
17. which block elements are called transition elements ?
- (1) S - block (2) P - block
(3) D - block (4) F - block
18. What is chemical formula of rust on Iron ?
- (1) Fe_2O_3 (2) $\text{Fe}_2\text{O}_3\text{H}_2\text{O}$
(3) FeO (4) FeO_2
19. What is the percentage of Al_2O_3 in Bauxite ?
- (1) 30% to 70% (2) 35% to 70%
(3) 30% to 75% (4) 70% to 75%
20. Chemical formula of lime stone is
- (1) $\text{Ca}(\text{OH})_2$ (2) CaCO_3
(3) CaCl_2 (4) CCl_4
21. What is the condensed structural formula of alcohol ?
- (1) - OH (2) - CHO
(3) - COOH (4) - NH_2
22. In which of the following elements does not consist isotopes ?
- (1) Carbon (2) Neon
(3) Chlorine (4) Iodine
23. In which of the following ink silver nitrate is used ?
- (1) Voting ink (2) Writting ink
(3) Printing ink (4) Marker pen ink

16. जल शुद्धीकरणात फुलरिनचा वापर म्हणून करतात.
- (1) इंधन (2) विसंवाहक
(3) उत्प्रेरक (4) क्षपणकारक
17. कोणत्या खंडातील मूलद्रव्यांना संक्रामक मूलद्रव्ये म्हणतात.
- (1) एस-खंड (2) पी-खंड
(3) डी-खंड (4) एफ-खंड
18. लोखंडाच्या गंजाचे रासायनिक सूत्र आहे.
- (1) Fe_2O_3 (2) $Fe_2O_3 \cdot H_2O$
(3) FeO (4) FeO_2
19. बॉक्साइटमध्ये किती टक्के Al_2O_3 असते ?
- (1) 30% ते 70% (2) 35% ते 70%
(3) 30% ते 75% (4) 70% ते 75%
20. चुनखडीचे रासायनिक सूत्र आहे.
- (1) $Ca(OH)_2$ (2) $CaCO_3$
(3) $CaCl_2$ (4) CCl_4
21. अल्कोहोलचे संक्षिप्त रचनासूत्र कोणते ?
- (1) - OH (2) - CHO
(3) - COOH (4) - NH_2
22. खालीलपैकी कोणत्या मूलद्रव्याला समस्थानिक नाही.
- (1) कार्बन (2) निऑन
(3) क्लोरीन (4) आयोडिन
23. सिल्व्हर नायट्रेटचा वापर खालीलपैकी कोणत्या शाईमध्ये केला जातो ?
- (1) मतदानाच्या शाईमध्ये (2) लिखाणाच्या शाईमध्ये
(3) प्रिन्टरच्या शाईमध्ये (4) मार्करच्या शाईमध्ये

24. To prevent the misuse of the important commercial solvent ethanol is mixed with
- (1) ~~Methanol~~ (2) Propanol
 (3) Ethanoic acid (4) Propane
25. Chemical formula of cryolite is.....
- (1) NaAlF (2) ~~Na₃AlF₆~~
 (3) Na₂AlF₃ (4) Na₂AlF₂
26. Which of the following is not Dobereiner's Traide ?
- (1) Li, Na, K (2) ~~Cl, K, Cr~~
 (3) Ca, Sr, Ba (4) Cl, Br, I
27. By using only one of the two strands of DNA, mRNA is produced this process is called as
- (1) Transcription (2) Translation
 (3) Translocation (4) Replacement
28. Identify phase in mitosis shown by : centromeres split and thereby sister chromatids of each chromosome seperates and they are pulled apart in opposite direction.
- (1) ~~Telophase~~ (2) Prophase
 (3) Metaphase (4) ~~Anaphase~~
29. If the embryonic cells are divided into two groups 8 days after the zygote formation then there is high possiblity of formation of
- (1) Genetically different twin girls (2) ~~Siamese twins~~
 (3) Genetically different twin boys (4) Genetically different one boy one girl
30. Which is the sequence of four whorls of flower from outside to inside ?
- (1) ~~calyx → corolla → androceium → gynoceium~~
 (2) gynoceium → androceium → corolla → calyx
 (3) calyx → androceium → corolla → gynoceium
 (4) gynoceium → corolla → androceium → calyx

24. ईथेनॉल या महत्वाच्या औद्योगिक द्रावकाचा गैरवापर टाळण्यासाठी त्यात कोणते द्रव्य मिसळतात ?
- (1) मीथेनॉल (2) प्रोपेनॉल
(3) इथेनॉईक ॲसिड (4) प्रोपेन
25. क्रायोलाइटचे रेणूसूत्र आहे.
- (1) NaAlF_6 (2) Na_3AlF_6
(3) Na_2AlF_3 (4) Na_2AlF_2
26. खालीलपैकी कोणते डोबेरायनरचे त्रिक नाही.
- (1) Li, Na, K (2) Cl, K, Cr
(3) Ca, Sr, Ba (4) Cl, Br, I
27. DNA च्या दोन धाग्यांपैकी एका धाग्याचा वापर करून mRNA ची निर्मिती केली जाते या प्रक्रियेला म्हणतात.
- (1) प्रतिलेखन (2) भाषांतरण
(3) स्थानांतरण (4) प्रतिस्थापन
28. सूत्री पेशी विभाजनामध्ये धाग्यांच्या मदतीने गुणसूत्रबिंदूचे विभाजन होऊन प्रत्येक गुणसूत्रांची अर्धगुणसूत्र जोडी वेगळी होऊन विरुद्ध दिशेला ओढली जाते. हा गुणधर्म दाखविणारी सूत्री पेशी विभाजनातील अवस्था ओळखा.
- (1) अंत्यावस्था (2) पूर्वावस्था
(3) मध्यावस्था (4) पश्चावस्था
29. भ्रूणपेशीची विभागणी जर युग्मज तयार झाल्यापासून 8 दिवसानंतर झाली तर जन्माला येण्याची शक्यता असते.
- (1) जनुकीय दृष्ट्या वेगळ्या दोन मुली (2) सायामिज जुळे
(3) जनुकीयदृष्ट्या वेगळी दोन मुले (4) जनुकीयदृष्ट्या वेगळे एक मुलगा, एक मुलगी.
30. वनस्पतीच्या फुलांमधील चार मंडलांची रचना आतून बाहेर कोणत्या क्रमाने असते ?
- (1) निदलपुंज → दलपुंज → पुमंग → जायांग
(2) जायांग → पुमंग → दलपुंज → निदलपुंज
(3) निदलपुंज → पुमंग → दलपुंज → जायांग
(4) जायांग → दलपुंज → पुमंग → निदलपुंज

31. Sunderban sanctuary of West Bengal is reserved for which animals ?

- (1) Rhino (2) Bison
(3) Tiger (4) Asiatic lion

32. From the following which animal is warm blooded, presence of mammary glands and body divided into head, neck, trunk and tail.

- (1) Penguin (2) Tortoise
(3) Pigeon (4) Bat

33. In process of fermentation of production of wine from grapes which micro organism is used ?

- (1) Saccharomyces cerevisiae (2) Aspergillus oryzae
(3) Lactobacillus brevis (4) Aspergillus niger

34. Given below pairs proteins of produced by biotechnology and disease they are used against. Find the odd pair.

Proteins Produced	Diseases
(1) Insulin	- Diabetes
(2) Erythropoietin	- Anemia
(3) Interleukin	- Cancer
(4) Interferon	- Hemophilia

35. Which factor from the following decreases efficiency of nervous system, liver as well as lifespan of person.

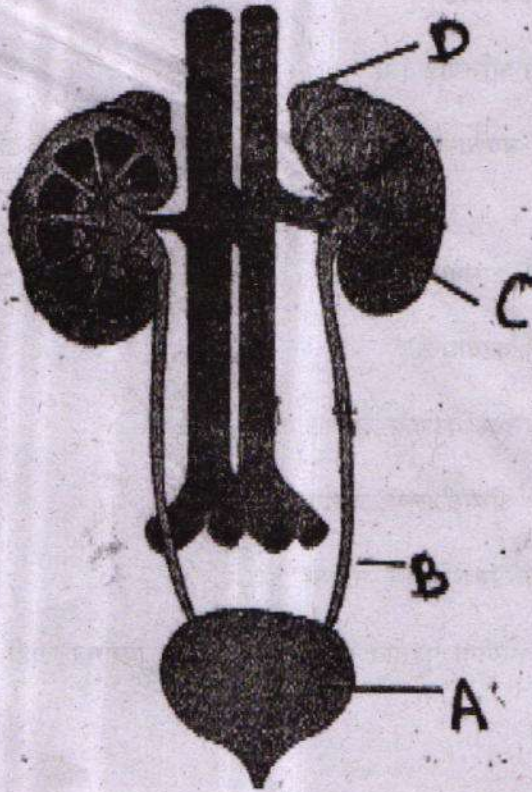
- (1) Tobacco (2) Gutkha
(3) Alcohol (4) Stress

36. Who is responsible at the district level disaster management and implementation of rehabilitation schemes ?

- (1) Chief Minister
(2) Home Minister
(3) Collector
(4) Tahsildar

31. पश्चिम बंगालमधील सुंदरबन अभयारण्य कोणत्या प्राण्यासाठी राखीव आहे ?
- (1) एकाशिंगी गेंडा (2) रानगवे
(3) वाघ (4) अेशियाई सिंह
32. खालील पैकी कोणता प्राणी उष्णरक्ती असून त्यांना दूध स्रवणाऱ्या ग्रंथी असतात. तसेच त्यांच्या शरिराचे डोके, मान, धड व शेपूट असे भाग असतात.
- (1) पेंग्वीन (2) कासव
(3) कबुतर (4) वटवाधूळ
33. द्राक्षांपासून वाईन तयार करण्यासाठीच्या किण्वन प्रक्रियेमध्ये कोणता सूक्ष्मजीव वापरतात ?
- (1) सॅकरोमायसिस सेरेव्हिसी (2) अॅस्पेरजिलस ओरायझी
(3) लॅक्टोबॅसीलस ब्रुईस (4) अॅस्पेरजिलस नायगर
34. खाली दिलेल्या प्रथिन उत्पादने व ती कोणत्या रोगावर उपयोगी पडतात यांच्या जोड्यांमधून विसंगत जोडी ओळखा.
- | प्रथिन उत्पादन | रोग |
|--------------------|--------------|
| (1) इन्शुलिन | - मधुमेह |
| (2) इरिथ्रोपॉयेटिन | - अॅनिमिया |
| (3) इंटरल्युकीन | - कॅन्सर |
| (4) इंटरफेरॉन | - हिमोफिलिया |
35. खालील पैकी कोणत्या घटकांमुळे माणसाचे यकृत व चेतासंस्था यांची कार्यक्षमता तसेच आयुष्यमान कमी होते ?
- (1) तंबाखू (2) गुटखा
(3) अल्कोहोल (4) ताणतणाव
36. जिल्हास्तरीय आपत्ती व्यवस्थापनासाठी व आपत्ती निवारण योजनांच्या परिपूर्णतेसाठी कोण जबाबदार असतात ?
- (1) मुख्यमंत्री
(2) गृहमंत्री
(3) जिल्हाधिकारी
(4) तहसिलदार

37. Identify the adrenal gland from the following figure



(1) A

(2) B

(3) C

~~(4) D~~

38. Identify the correct sequence for process of energy production from carbohydrates.

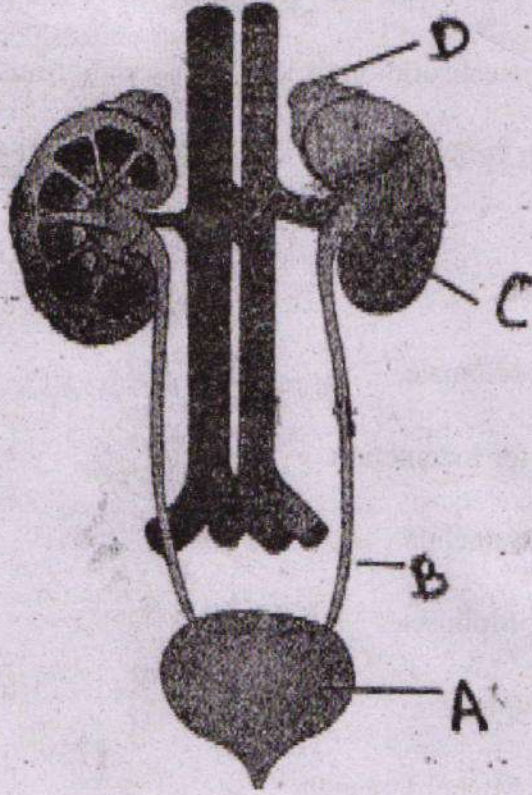
~~(1) Carbohydrates → Glycolysis → Pyruvic acid → AcetylCoA → Krebs cycle → $CO_2 + H_2O + energy$~~

(2) Carbohydrates → Glycolysis → Pyruvic acid → Krebs cycle → AcetylCoA → $CO_2 + H_2O + energy$

(3) Carbohydrates → Glycolysis → AcetylCoA → Pyruvic acid → Krebs cycle → $CO_2 + H_2O + energy$

(4) Carbohydrates → Glycolysis → AcetylCoA → Krebs cycle → Pyruvic acid → $CO_2 + H_2O + energy$

37. खालील आकृतीमधील वृक्कस्थ ग्रंथी ओळखा.



(1) A

(2) B

(3) C

(4) D

38. कर्बोदकांचे ऑक्शिडेशन करून ऊर्जा मिळविण्याच्या प्रक्रियेतील योग्य क्रम ओळखा

(1) कर्बोदके \rightarrow ग्लूकोज विघटन \rightarrow पायरुविक आम्ल \rightarrow अॅसेटील-को-एन्झाईम-A \rightarrow क्रेबचक्र \rightarrow $CO_2 + H_2O +$ ऊर्जा

(2) कर्बोदके \rightarrow ग्लूकोज विघटन \rightarrow पायरुविक आम्ल \rightarrow क्रेबचक्र \rightarrow अॅसेटील-को-एन्झाईम-A \rightarrow $CO_2 + H_2O +$ ऊर्जा

(3) कर्बोदके \rightarrow ग्लूकोज विघटन \rightarrow अॅसेटील-को-एन्झाईम-A \rightarrow पायरुविक आम्ल \rightarrow क्रेबचक्र \rightarrow $CO_2 + H_2O +$ ऊर्जा

(4) कर्बोदके \rightarrow ग्लूकोज विघटन \rightarrow अॅसेटील-को-एन्झाईम-A \rightarrow क्रेबचक्र \rightarrow पायरुविक आम्ल \rightarrow $CO_2 + H_2O +$ ऊर्जा

39. Identify the function of columnar epithelium

- (1) Selective transport of substances (2) Prevention of wearing of organs
(3) Secretion of digestive juice ~~(4) Reabsorption of useful materials from urine~~

40. Body structure of different animals is given below. Identify to which phylum the animal belongs

1 Long, cylindrical, metamerically segmented.

2 Triploblastic, bilaterally symmetrical, eucoelomate.

3 They have setae or parapodia or suckers for locomotion.

- (1) Arthropoda (2) Annelida
~~(3) Aschelminthes~~ • (4) Mollusca

41. Who was the founder of modern Historiography ?

- ~~(1) Voltair~~ • (2) Michel Foucault
(3) Karl Marx (4) Rene Descartes

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

- (1) Who were the shudras - History of Subaltern
(2) Stri - Purush Tulana - Feminist writing
(3) Cambridge History of India - Colonial Historiography
~~(4) The Indian war of Independence~~ - Marxist History

43. The Main Office of National Film Archives of India is at

- (1) Mumbai ~~(2) Pune~~
(3) Kolkata (4) Delhi

39. स्तंभिय अभिस्तर उतीचे कार्य ओळखा.

(1) ठराविक पदार्थाचे वहन करणे

(2) अवयवांची झीज रोखणे.

(3) पाचकरस सवणे

(4) मूत्रातील उपयुक्त घटक शोषणे.

40. खालील प्रकारची शरिर रचना असणारे प्राणी कोणत्या प्राणीसंघात येतात ते ओळखा.

1 लांबट, दंडाकृती, कायखंड - खंडीभवन युक्त शरिर रचना

2 हे प्राणी त्रिस्तरीय, द्विपार्श्व सममित आणि सत्य देहगुहायुक्त आहेत.

3 प्रचलनासाठी वृद्धरोम किंवा परापाद किंवा चूषक यासारखे अवयव असतात.

(1) संधिपाद

(2) वलयी

(3) गोलकृमी

(4) मृदुकाय

41. आधुनिक इतिहास लेखनाचा जनक कोणास म्हणतात ?

(1) व्हॉल्टेअर

(2) माइकल फुको

(3) कार्ल मार्क्स

(4) रेने देकार्त

42. पुढील पैकी चुकीची जोडी ओळखा.

(1) हू वेअर द शुद्राज

- वंचिताचा इतिहास

(2) स्त्री पुरुष तुलना

- स्त्री वादी लेखन

(3) केंब्रीज हिस्टरी ऑफ इंडिया

- वसाहतवादी इतिहास

(4) द इंडियन वॉर ऑफ इन्डिपेन्डस

- मार्क्सवादी इतिहास

43. राष्ट्रीय फिल्म संग्रहालय (नॅशनल फिल्म अर्काइव्ह) या संस्थेची मुख्य कचेरी हा शहरात आहे.

(1) मुंबई

(2) पुणे

(3) कोलकाता

(4) दिल्ली

44. Identify the style of the temple architecture that has been shown in the above picture ?



(1) Dravid

(2) Vesara

(3) Nagara

(4) Bhoomija

45. Who started the First English Newspaper in India ?

(1) Alen Hume

(2) Sir John Marshal

(3) James Augustus Hickey

(4) Michel Foucault

46. Who is known - as the first Keertankar of Maharashtra ?

(1) Saint Dnyaneshwar

(2) Saint Tukaram

(3) Saint Namdev

(4) Saint Eknath

47. Write the name of the Wooden dolls made in Maharashtra.

(1) Thaki

(2) Kali Chandika

(3) Gangavati

(4) Champavati

48. 'Bhilar' - the village near Mahableshwar is famous as the 'village of

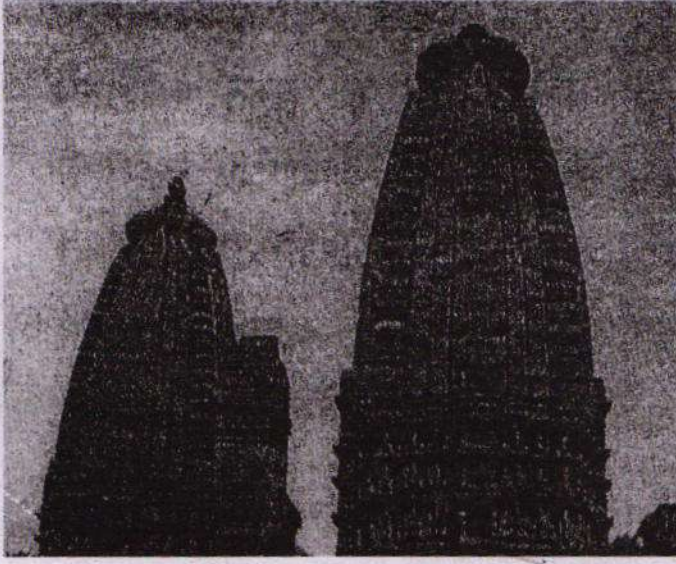
(1) Plants

(2) Books

(3) Forts

(4) Mangoes

44. सोबतच्या चित्रातील मंदिर स्थापत्याचे शिखर कोणत्या शैलीचे आहे ?



(1) द्रविड

(2) वेसर

(3) नागर

(4) भूमिज

45. भारतातील पहिले इंग्रजी वर्तमानपत्र कोणी सुरु केले ?

(1) अँलन ह्यूम

(2) सर जॉन मार्शल

(3) जेम्स ऑगस्टस हिकी

(4) मायकेल फुको

46. महाराष्ट्राचे आद्य किर्तनकार यांना मानतात.

(1) संत ज्ञानेश्वर

(2) संत तुकाराम

(3) संत नामदेव

(4) संत एकनाथ

47. पूर्वी महाराष्ट्रात तयार होणाऱ्या लाकडी बाहुलीला काय म्हणतात ?

(1) ठकी

(2) कालीचंडीका

(3) गंगावती

(4) चंपावती

48. महाबळेश्वर जवळील भिलार हे गांव कशासाठी प्रसिद्ध आहे ?

(1) वनस्पती

(2) पुस्तके

(3) किल्ले

(4) आंबे

49. Identify the wrong pair from the famous museums and its location in India.
- (1) Kolkata - Indian Museum (2) Delhi - National Museum
 (3) Hyderabad - Salarjang Museum (4) Mumbai - The Calico Museum of Textiles
50. Who said that, 'the prevailing practice of arranging historical events in a chronological order is not right ?'
- (1) Michel foucault (2) Seamaw The Bolva
 (3) Leopold von Ranke (4) George Wilhelm friendrich Hegel
51. Which style of architecture has been used to build, 'Chhatrapati Shivaji Maharaj Railway Terminus' ?
- (1) Muslim (2) Nagara
 (3) Dravid (4) Indo - Gothic
52. 6th January is celebrated as Day.
- (1) Right to Information (2) Journalist
 (3) Human rights (4) Cleanliness
53. is the birthdate of Major Dhyan Chand is celebrated as the 'National Sports Day' in India.
- (1) 28 October (2) 29 August
 (3) 10 December (4) 14 April
54. Under the leadership of Socialist leader women in Mumbai participated in a demonstration which came to be known as 'Laatne Morcha'
- (1) Pramila Dandavate (2) Mrinal Gore
 (3) Gaura Devi ✗ (4) Dr. Phulrenu Guha ✗
55. Which industry is known as 'Sunrise Sector' of India ?
- (1) Jute industry (2) Automobile industry
 (3) Cement Industry (4) Khadi and village industry
56. In the year 1983, The Indian cricket team won the World Cup under the captainship of
- (1) Sunil Gavaskar (2) Sandip Patil
 (3) Sayyed Kirmani (4) Kapil Dev

49. भारतातील प्रसिद्ध संग्रहालये यातील चुकीची जोडी ओळखा.
- (1) कोलकत्ता - इंडियन म्युझियम (2) दिल्ली - नॅशनल म्युझियम
 (3) हैद्राबाद - सालारजंग म्युझियम (4) मुंबई - द कॅलिको म्युझियम ऑफ टेक्सटाईल्स
50. इतिहासाची कालक्रमानुसार अखंड मांडणी करण्याची पद्धत चुकीची आहे, असे कोणी प्रतिपादन केले ?
- (1) मायकेल फुको (2) सीमॉन्-द-बोव्हा
 (3) लिओपोल्ड व्हॉन रॉंके (4) जॉर्ज विल्हेम फ्रेडरिक हेगेल
51. मुंबईचे छत्रपति शिवाजी महाराज रेल्वे टर्मिनस ही इमारत कोणत्या स्थापत्य शैलीचे उत्कृष्ट उदाहरण आहे ?
- (1) मुस्लिम (2) नागर
 (3) द्राविड (4) इंडो गोथिक
52. 6 जानेवारी हा दिवस म्हणून साजरा केला जातो.
- (1) माहिती अधिकार (2) पत्रकार
 (3) मानवी हक्क (4) स्वच्छता
53. मेजर ध्यानचंद्र यांचा हा जन्मदिवस 'राष्ट्रीय क्रीडादिवस' म्हणून साजरा केला जातो.
- (1) 28 ऑक्टोबर (2) 29 ऑगस्ट
 (3) 10 डिसेंबर (4) 14 एप्रिल
54. मुंबईत यांच्या नेतृत्वाखाली महिलांनी लाटणे मोर्चा काढला
- (1) प्रमिला दंडवते (2) मृणाल गोरे
 (3) गौरादेवी (4) डॉ. फुलरेणु गुहा
55. भारतातील कोणत्या उद्योगाला 'सनराईज क्षेत्र' असे म्हटले जाते ?
- (1) ताग (2) वाहन
 (3) सिमेंट (4) खादी व ग्रामोद्योग
56. 1983 मध्ये कोणाच्या नेतृत्वाखाली भारताने विश्वचषक क्रिकेट स्पर्धा जिंकली ?
- (1) सुनील गावस्कर (2) संदीप पाटील
 (3) सय्यद किरमाणी (4) कपिल देव

57. Several attempts were made towards democratic decentralisation. One of these attempts was the amendment to Indian constitution.
- (1) 71 and 72 • (2) 72 and 73 •
(3) 73 and 74 (4) 74 and 75
58. Identify the article of the Indian Constitution, which has established Election Commission as autonomous body ?
- (1) Art. - 314 (2) Art. - 324
~~(3) Art. - 334~~ (4) Art. - 344
59. Who appoints the Election Commissioner in India ?
- ~~(1) President~~ (2) Prime Minister
(3) Speaker of Lok Sabha (4) Vice President
60. Which one of the following is incorrect / wrong pair in concern with the region & the movement raised in it ?
- ~~(1) Chota Nagpur - Ramoshi~~
(2) Orissa - Gond
(3) Maharashtra - Koli
(4) Bihar - Munda
61. Which one of the following is irrelevant to the challenges faced by the Indian Democracy ?
- (1) Terrorism
(2) Corruption
(3) Naxalism
~~(4) Environmental Degradation~~
62. The essence of Democracy is
- (1) Universal Adult Franchise.
~~(2) Decentralisation of Power.~~
(3) Policy of reservation of seats.
(4) Judicial decisions.

57. भारतात लोकशाही विकेंद्रीकरणाचा सर्वात मोठा प्रयत्न व्या घटना दुरुस्तीत झाला
- (1) 71 व 72 (2) 72 व 73
(3) 73 व 74 (4) 74 व 75
58. 'निवडणूक आयोग' या भारतातील स्वायत्त यंत्रणेची निर्मिती संविधानाच्या कोणत्या कलमाने झाली ?
- (1) कलम - 314 (2) कलम - 324
(3) कलम - 334 (4) कलम - 344
59. भारतामध्ये निवडणूक आयुक्तांची नेमणूक कोण करतात ?
- (1) राष्ट्रपती (2) प्रधानमंत्री
(3) लोकसभा सभापती (4) उपराष्ट्रपती
60. पुढीलपैकी प्रदेश व आदिवासी उठाव यांच्यातील अयोग्य जोडी ओळखा.
- (1) छोटा नागपूर - रामोशी
(2) ओडिशा - गोंड
(3) महाराष्ट्र - कोळी
(4) बिहार - मुंडा
61. 'भारतीय लोकशाही समोरील आव्हाने' मधील विसंगत घटक ओळखा.
- (1) दहशतवाद
(2) भ्रष्टाचार
(3) नक्षलवाद
(4) पर्यावरणाचा ह्यास
62. लोकशाहीचा गाभा कशास म्हणतात ?
- (1) प्रौढ मताधिकार
(2) सभेचे विकेंद्रीकरण
(3) राखीव जागांचे धोरण
(4) न्यायालयीन निर्णय

63. Identify the Nation which is not a Member of 'BRICS' - an International Organization ?
- (1) India (2) ~~England~~
- (3) China (4) Russia
64. In 2005 The Indian. U.S. Civil Nuclear Agreement was signed by the Prime Minister of India and George W. Bush - the American President
- (1) Rajiv Gandhi (2) P. V. Narsimha Rao
- ~~(3) Dr. Manmohan Singh~~ (4) Atal Bihari Vajpayee
65. India has no coastline along the direction
- (1) East (2) West
- (3) South ~~(4) North~~
66. Identify the oddman out
- (1) Snow (2) hailstone
- ~~(3) Ice~~ (4) rainFall
67. Though India has a higher national income as compared to Brazil, the per capita income of India is lower than Brazil because
- ~~(1) The Population of India is more.~~ (2) The Population of India is less.
- (3) The Population of Brazil is more. (4) The Population of Brazil and India is equal.
68. Identify the wrong statement, regarding Importance of Population
- (1) Expansion of trade. (2) Rapid Industrialization
- (3) Tourism Development. ~~(4) Lack of employment opportunities.~~
69. India too has a large longitudinal extent. The difference between the two extreme most points is
- (1) 110 ~~(2) 120~~
- (3) 130 (4) 140

63. 'BRICS' या आंतरराष्ट्रीय संघटनेत पुढीलपैकी कोणत्या देशाचा सहभाग नाही ?
- (1) भारत (2) इंग्लंड
(3) चिन (4) रशिया
64. 2005 मध्ये भारत आणि अमेरिका यांच्यातील नागरी अणुसहकार्य कराराला भारताचे तत्कालीन प्रधानमंत्री आणि अमेरिकेचे अध्यक्ष जॉर्ज बुश यांनी मान्यता दिली.
- (1) राजीव गांधी (2) पी. व्ही. नरसिंहराव
(3) डॉ. मनमोहन सिंग (4) अटलबिहारी वाजपेयी
65. भारताच्या कोणत्या दिशेला सागरी किनारा नाही ?
- (1) पूर्व (2) पश्चिम
(3) दक्षिण (4) उत्तर
66. गटात न बसणारा घटक/शब्द ओळखा.
- (1) हिम (2) गारा
(3) बर्फ (4) पर्जन्य
67. भारताचे स्थूल राष्ट्रीय उत्पन्न ब्राझीलपेक्षा जास्त असूनही भारताचे दरडोई उत्पन्न ब्राझीलच्या तुलनेत कमी आहे कारण
- (1) भारताची लोकसंख्या जास्त आहे. (2) भारताची लोकसंख्या कमी आहे.
(3) ब्राझीलची लोकसंख्या जास्त आहे. (4) भारत व ब्राझील लोकसंख्या समान आहे.
68. वाहतूकीचे महत्व - अयोग्य विधान कोणते आहे ?
- (1) व्यापार विस्तार (2) जलद औद्योगिकीकरण
(3) पर्यटन विकास (4) रोजगार संधीची कमतरता
69. भारतातील अति पूर्व व अति पश्चिम टोकांवरील रेखावृत्तामधील वेळेचा फरक किती मिनिटांचा आहे ?
- (1) 110 (2) 120
(3) 130 (4) 140

70. Find out the odd man out from given options.

~~(1) Ganga~~

(2) Sabarmati

(3) Sindhu

(4) Yamuna

71. Which type of settlement has been found at the uneven topography of Himalaya ?

(1) Nucleated

(2) Linear

~~(3) Dispersed~~

(4) Star - Shaped

72. Which one is not the mean of Communication ?

(1) Computer

(2) Mobiles

(3) Internet

~~(4) Encyclopaedia.~~

73. Identify the correct option from pairs given below

State

Travel Place

(A) Maharashtra

(I) Udagmandalam

(B) Rajasthan

(II) Masoori

(C) Uttarakhand

(III) Aajintha

(D) Tamilnadu

(IV) Jaisalmer

~~(1) A - III, B - IV, C - II, D - I~~

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

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

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

70. खालील पैकी वेगळ घटक ओळखा.

- (1) गंगा
- (2) साबरमती
- (3) सिंधू
- (4) यमुना

71. हिमालयाच्या उंचसखल प्रदेशात कोणता वस्ती प्रकार अढळतो ?

- (1) केंद्रीत
- (2) रेषाकृती
- (3) विखूरलेला
- (4) ताराकृती

72. खालीलपैकी संदेशवहन साधनांचा प्रकार कोणता घटक नाही ?

- (1) संगणक
- (2) भ्रमणध्वनी
- (3) इंटरनेट
- (4) विश्वकोश

73. बरोबर जोड्या असलेला प्रकार ओळखा.

राज्य	पर्यटन स्थळे
(अ) महाराष्ट्र	(I) उदगमंडल
(ब) राजस्थान	(II) मसुरी
(क) उत्तराखंड	(III) अजिंठा
(ड) तमिळनाडू	(IV) जैसलमेर

- (1) अ - III, ब - IV, क - II, ड - I
- (2) अ - IV, ब - III, क - I, ड - II
- (3) अ - II, ब - I, क - III, ड - IV
- (4) अ - I, ब - II, क - IV, ड - III

74. Which country do not share their border with Brazil ?

(1) Argentina

(2) Myanmar

(3) Peru

(4) French Guiana

75. Identify the correct options of pairs given below.

'A' Group

'B' Group

(A) Temperate Grasslands

(I) Savanna

(B) Thorny Shrubs

(II) Amazon River Basin

(C) Tropical Grasslands

(III) Coatinga

(D) Equatorial forests

(VI) Pampas

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

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

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

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

76. Which river has been shown with letter 'A' in the given outline map of Brazil ?



(1) Paraguay

(2) Paraniba

(3) Urugway

(4) Purus

77. is a large coastal island located between the mouths of River Amazon and River Tocantins.

(1) Sao Francisco

(2) Marajo

(3) Marcos

(4) Rio

74. खालिलपैकी कोणता देश ब्राझीलच्या सीमेलगत नाही ?

(1) अर्जेन्टिना

(2) म्यानमार

(3) पेरू

(4) फ्रेंच गियाना

75. योग्य जोड्यांचा पर्याय ओळखा.

स्तंभ 'अ'

स्तंभ 'ब'

(A) समशीतोष्ण गवताळ प्रदेश

(I) सॅव्हाना

(B) काटेरी झुडपी वने

(II) अॅमेझॉन नदीचे खोरे

(C) उष्ण गवताळ प्रदेश

(III) कटिगा

(D) विषुववृत्तीय वने

(VI) पंपास

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

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

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

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

76. सोबतच्या नकाशा आराखड्यात 'A' या अक्षरस्थानी ब्राझीलमधील कोणती नदी आहे ?



(1) पॅराग्वे

(2) परानिबा

(3) उरुग्वे

(4) पुरुस

77. अॅमेझॉन व टोकॅटिन्स नद्यांचा मुखादरम्यान हे मोठे किनारी बेट तयार झाले आहे.

(1) सावो फ्रान्सिस्को

(2) माराजॉ

(3) मारकोस

(4) रिओ

78. Identify the correct option of pairs given below

Group 'A'	Group 'B'	Group 'C'
Region	Average Rain fall	Type of Forest
(A) Giana Highlands	(I) 1500 mm	(P) Temperate Grasslands
(B) Amazon Basin	(II) 600 mm	(Q) Deciduous Forests
(C) Paraguay-Parana Basin	(III) 1600 mm	(R) Tropical Forests
(D) Brazilian Highland	(IV) 2000 mm	(S) Equatorial Forests

(1) ~~A - III - R, B - IV S, C - I - Q, D - II - P~~

(2) A - IV - S, B - III - R, C - II - P, D - I - Q

(3) A - I - P, B - II - Q, C - III - R, D - IV - S

(4) A - II - Q, B - I - P, C - IV - S, D - III - R

79. Choose the correct option of favourable factors for highest population density

(1) ~~fertile land - plain lands - availability of water~~

(2) fertile land - agricultural development - dry desert area

(3) plain lands - development of industry - hilly regions

(4) hilly regions - dense forest area - fertile land.

80. In which district of Meghalaya - the highest rainfall place Mawsynram is situated ?

(1) Garo

(2) Jaitiya

(3) Khasi

(4) Dispur

81. Which of the following two linear equations have only one unique solution $x = 2$ and $y = -3$

(1) $x + y = -1$; $2x - 3y = -5$

(2) $2x + 5y = -11$; $4x + 10y = 22$

(3) $2x - y = 1$; $3x + 2y = 0$

(4) $x - 4y - 14 = 0$; $5x - y - 13 = 0$

78. खालील बाबींच्या योग्य जोड्यांचा पर्याय ओळखा.

स्तंभ 'अ'	स्तंभ 'ब'	स्तंभ 'क'
प्रदेश	सरासरी पर्जन्य	वनांचा प्रकार
(A) गिआना उच्चभूमि	(I) 1500 मिमी	(P) समशीतोष्ण वने
(B) अॅमेझॉनचे खोरे	(II) 600 मिमी	(Q) पानझडी वने
(C) पॅराग्वे - पॅराना नदीचे खोरे	(III) 1600 मिमी	(R) उष्ण कटिबंधीय वने
(D) ब्राझीलची उच्चभूमि	(IV) 2000 मिमी	(S) विषुववृत्तीय वने

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

79. लोकसंख्येची घनता जास्त असण्यासाठी खालीलपैकी कोणत्या घटकांचा योग्य पर्याय आहे ?

- (1) सुपीक जमीन - मैदानी प्रदेश - पाण्याची उपलब्धता
 (2) सुपीक जमीन - शेतीचा विकास - शुष्कवाळवंटी प्रदेश
 (3) मैदानी प्रदेश - उद्योगांचा विकास - डोंगराळ प्रदेश
 (4) डोंगराळ प्रदेश - घनदाट वनक्षेत्र - सुपीक जमीन

80. मेघालयामधील मौसिनराम हे सर्वाधिक पर्जन्यवृष्टीचे ठिकाण खालीलपैकी कोणत्या जिल्ह्यात आहे ?

- (1) गारो (2) जैतिया
 (3) खासी (4) दिसपूर

81. खालीलपैकी कोणत्या दोन रेषीय समीकरणांच्या जोडीची एकमेव उकल $x = 2$ आणि $y = -3$ आहे.

- (1) $x + y = -1$; $2x - 3y = -5$ (2) $2x + 5y = -11$; $4x + 10y = 22$
 (3) $2x - y = 1$; $3x + 2y = 0$ (4) $x - 4y - 14 = 0$; $5x - y - 13 = 0$

82. If $\alpha + \beta = -3$ and $\alpha\beta = -\frac{5}{2}$ then find the quadratic equation whose roots are α and β ?

(1) $2x^2 - 5x + 6 = 0$

(2) $2x^2 - 6x + 5 = 0$

~~(3) $2x^2 + 6x - 5 = 0$~~

(4) $2x^2 - 6x - 5 = 0$

$$\begin{array}{r} 253 \\ + \\ \hline 361 \end{array}$$

83. What is the probability of having 53 Thursdays in ordinary year (except leap year) ?

(1) $\frac{2}{7}$

~~(2) $\frac{3}{7}$~~

$x^2 + 3x - \frac{5}{2}$

(3) $\frac{1}{7}$

(4) $\frac{4}{7}$

2

23,

84. How many natural numbers between 15 to 500 when divided by 6 leave remainder 5 ?

(1) 80

~~(2) 81~~

23 \therefore 34, 45, $\frac{495}{6}$

(3) 82

(4) 83

$495 = 23 + (n-1)11$

$\frac{495-23}{11} = \frac{472}{11}$

$\frac{498}{6} = 83$

85. Choose correct alternative for the value of determinat.

$\begin{vmatrix} 5 & 7 \\ 3 & 2 \\ 3 & 3 \\ 4 & 2 \end{vmatrix}$

$497 = 23 + (n-1)11$

$2 \frac{49}{11} = n-1$

$\frac{5}{2} - \frac{21}{8}$

$\frac{20-21}{8}$

4

4

4

$\frac{82}{6} = 13 \frac{4}{6}$

(A) $\frac{1}{8}$

~~(B) $\frac{-1}{8}$~~

(C) $\left(\frac{-1}{2}\right)^3$

(D) $\frac{-1}{\sqrt[3]{512}}$

(1) A and C

~~(2) B, C and D~~

(3) A, B and C

(4) A, C and D

82. जर $\alpha + \beta = -3$ व $\alpha\beta = -\frac{5}{2}$ असेल तर α आणि β ही मूळे असणारे वर्गसमीकरण कोणते ?

(1) $2x^2 - 5x + 6 = 0$

(2) $2x^2 - 6x + 5 = 0$

(3) $2x^2 + 6x - 5 = 0$

(4) $2x^2 - 6x - 5 = 0$

83. लीप वर्ष सोडून कोणत्याही वर्षात 53 गुरुवार येण्याची संभाव्यता किती आहे ?

(1) $\frac{2}{7}$

(2) $\frac{3}{7}$

(3) $\frac{1}{7}$

(4) $\frac{4}{7}$

84. 15 ते 500 दरम्यानच्या नैसर्गिक संख्यांना 6 ने भागले असता बाकी 5 असणाऱ्या एकूण संख्या किती ?

(1) 80

(2) 81

(3) 82

(4) 83

17, 23, 29, 35, 41, 498

$$\begin{array}{r} 83 \\ 498 \\ \hline 6 \end{array}$$

85. या निश्चयकाच्या किंमतीसाठी उत्तरांचे योग्य पर्याय निवडा.

$$\begin{vmatrix} 5 & 7 \\ 3 & 2 \\ 3 & 3 \\ 4 & 2 \end{vmatrix}$$

$$23 + (n-1)6 = 498$$

$$(n-1)6 = 475$$

(अ) $\frac{1}{8}$

(ब) $\frac{-1}{8}$

$$\begin{array}{r} 475 - 6 \\ \hline 6 \end{array}$$

(क) $\left(\frac{-1}{2}\right)^3$

(ड) $\frac{-1}{\sqrt[3]{512}}$

$$\begin{array}{r} 492 \\ 5 \\ \hline 497 \end{array}$$

$$\begin{array}{r} 497 \\ 17 \\ \hline 498 \\ \hline 6 \end{array}$$

(1) अ व क

(2) ब, क व ड

(3) अ, ब व क

(4) अ, क व ड

86. If roots of the quadratic equation $3ax^2 + 2bx + c = 0$ are in the ratio 2 : 3 then which of the following statement is true ?

(1) $8ac = 25b$

(2) $8ac = 9b^2$

(3) $8b^2 = 9ac$

(4) $8b^2 = 25ac$

$$\frac{c}{3a} = a \cdot b$$

$$\frac{a \cdot b}{b} = \frac{2}{3} b^2$$

$$\frac{c}{3a} = \frac{2b^2}{b}$$

$$c = 2ab^2$$

87. In Arithmetic Progression there are n terms (n is odd) and middle term is m then what is $S_n = ?$

(1) $\frac{mn}{2}$

(2) mn

(3) $2mn$

(4) mn^2

$$\frac{a}{b} = \frac{2}{3}$$

$$a = \frac{2}{3}b$$

$$a \cdot b = \frac{c}{3a}$$

$$\frac{2}{3}b^2 = \frac{c}{3a}$$

88. If $N = 70, h = 10, c.f. = 22, f = 10, L = 30$ then using this information find median ? $2ab^2 = c$

~~(1) 42~~

(2) 45

(3) 43

(4) 34

89. Two dice are rolled simultaneously. what is the probability of getting sum of the digits on the upper face as a prime number ?

(1) $\frac{5}{36}$

~~(2) $\frac{5}{12}$~~

(3) $\frac{5}{18}$

(4) $\frac{11}{36}$

$$\frac{5 + 15}{12 \cdot 36}$$

(1,1) (1,2)

1,1 1,2 1,3 1,4 1,5 1,6

2,1 2,2 2,3 2,4 2,5 2,6

3,1 3,2 3,3 3,4 3,5 3,6

4,1 4,2 4,3 4,4 4,5 4,6

5,1 5,2 5,3 5,4 5,5 5,6

6,1 6,2 6,3 6,4 6,5 6,6

90. The number formed when 5 is subtracted after multiplying by 8 to the sum of digits of a two digit number is equal to the number formed when 3 is added after multiplying by 16 to the difference of digits in a number. what is the number ?

(1) 83

~~(2) 84~~

(3) 85

(4) 78

$$8(x+y) - 5 = 3 + 16(x-y)$$

$$8x + 8y - 5 = 3 + 16x - 16y$$

$$24y = 8 + 24x$$

$$3y = 1 + 3x$$

86. $3ax^2 + 2bx + c = 0$ ह्या वर्गसमीकरणांच्या मुळांचे गुणोत्तर 2 : 3 आहे तर खालीलपैकी कोणते विधान खरे आहे ?

(1) $8ac = 25b$

(2) $8ac = 9b^2$

(3) $8b^2 = 9ac$

(4) $8b^2 = 25ac$

87. एका अंकगणितीय श्रेढीत n पदे आहेत (n हा विषम) आणि श्रेढीचे मधले पद m असल्यास त्या श्रेढीसाठी $S_n =$ किती ?

$$\alpha + \beta = \frac{-2b}{3a}$$

(1) $\frac{mn}{2}$

$$\frac{2}{3} \beta + \beta = \frac{2b}{3a}$$

(2) mn

(3) $2mn$

$$5\beta = \frac{-10b}{3a}$$

(4) mn^2

88. जर $N = 70, h = 10, c.f. = 22, f = 10, L = 30$ तर ह्या माहितीच्या आधारे मध्यकाची किंमत किती ?

(1) 42

(2) 45

(3) 43

(4) 34

89. दोन फासे एकाच वेळी फेकले असता, पृष्ठभागावर येणाऱ्या संख्यांची बेरीज मूळ संख्या असण्याची संभाव्यता किती ?

(1) $\frac{5}{36}$

(2) $\frac{5}{12}$

(3) $\frac{5}{18}$

(4) $\frac{11}{36}$

90. दोन अंकी संख्येतील अंकांच्या बेरजेला 8 ने गुणले व त्यातून 5 वजा केले तर मिळणारी संख्या ही त्या संख्येतील अंकांच्या वजाबाकीस 16 ने गुणून त्यात 3 मिळवून तयार होते तर ती संख्या कोणती ?

(1) 83

(2) 84

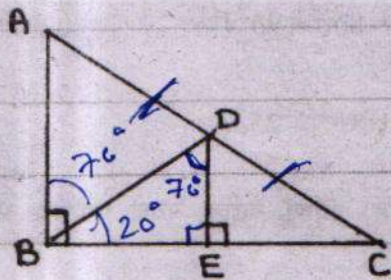
(3) 85

(4) 78

$$(x+y) = 1+2x-2y$$

$$3y - x = 1$$

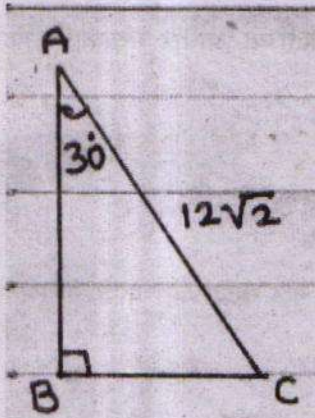
91. In the adjoining figure $\triangle ABC$ is a right angled triangle. Point D is the midpoint of hypotenuse AC. Segment $DE \perp$ side BC. $m\angle ABD = 70^\circ$ then find $m\angle CDE - m\angle DBE = ?$



20

- (1) 70° (2) 20°
~~(3) 50°~~ (4) 30°

92. Observe the adjoining figure. From the given information the perimeter of the triangle is given below. Choose the correct alternative.



$$\frac{BC}{12\sqrt{2}} = \frac{1}{2}$$

$$BC = 6\sqrt{2}$$

$$6\sqrt{6} \frac{\sqrt{3}}{2} = x$$

$$18\sqrt{2} + 6\sqrt{6}$$

~~(A) $(18\sqrt{2} + 6\sqrt{6})$~~

(B) $(6\sqrt{3} + 12\sqrt{2})$

(C) $(18 + 6\sqrt{3})\sqrt{2}$

(D) $(18 + 6\sqrt{6})\sqrt{2}$

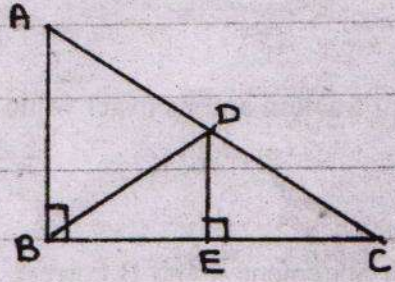
(1) A and B

(2) A and C

(3) C and D

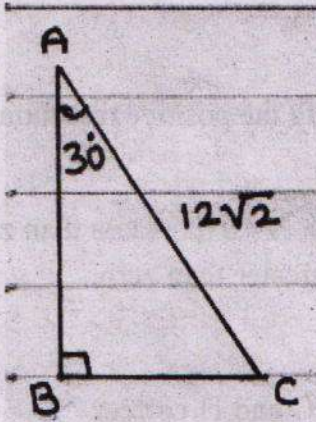
(4) only D

91. आकृतीमध्ये $\triangle ABC$ काटकोन त्रिकोण असून बिंदू D हा कर्ण AC चा मध्यबिंदू आहे. रेषा $DE \perp$ बाजू BC आणि $m\angle ABD = 70^\circ$ आहे. तर $m\angle CDE - \angle DBE =$ किती ?



- (1) 70° (2) 20°
 (3) 50° (4) 30°

92. $\triangle ABC$ मध्ये दिलेल्या माहितीवरून $\triangle ABC$ च्या परिमितीसाठी खाली दिलेली कोणती उत्तरे बरोबर आहेत ?



(A) $(18\sqrt{2} + 6\sqrt{6})$

(B) $(6\sqrt{3} + 12\sqrt{2})$

(C) $(18 + 6\sqrt{3})\sqrt{2}$

(D) $(18 + 6\sqrt{6})\sqrt{2}$

(1) A व B

(2) A व C

(3) C व D

(4) फक्त D

93. Read the following statements carefully and choose the correct alternative.

(A) The ratio of the circumference of a circle to its diameter is denoted by the Greek letter π .

$2\pi r$

(B) π is non-terminating, recurring decimal fraction and its exact value is $\frac{22}{7}$ ($\pi = \frac{22}{7}$).

Alternatives :

(1) Statements A and B false

(2) Statement A and B correct

~~(3) Statement A correct but B false.~~

(4) Statement A false but B correct

94. Read the following statement carefully and choose the correct alternative.

(A) The slope of the line parallel to X-axis can be derived by the formula $\frac{x_2 - x_1}{y_2 - y_1}$.

(B) The slope of the line parallel to Y-axis is 1

(C) The cotangent ratio of an angle made by the line with the positive direction of X-axis is called the slope of that line.

(D) The slope of the line which makes acute angle with X-axis is less than zero and the slope of the line making obtuse angle with X-axis is greater than zero.

Alternative :

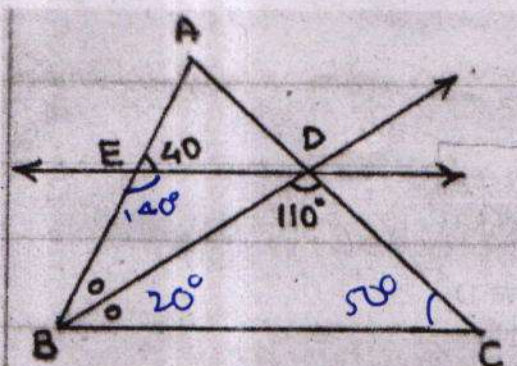
(1) Statement A and B correct ~~X~~

(2) Statement C and D correct ~~X~~

(3) only statement C is wrong ~~X~~

~~(4) All statements are wrong~~

95. In the adjoining figure ray BD bisects $\angle ABC$ of $\triangle ABC$ seg $ED \parallel$ side BC $m\angle AED = 40^\circ$ and $m\angle BDC = 110^\circ$ then find the measurements of $\angle EDB$ and $\angle DCB$ respectively. Choose the correct alternative from the following.



~~(1) 20° and 50°~~

(2) 50° and 20°

(3) 40° and 50°

(4) 40° and 70°

93. खाली दिलेल्या विधानांचा विचार करून उत्तराचा योग्य पर्याय निवडा.

(अ) एकाच वर्तुळाचा परीघ व व्यास यांचे गुणोत्तर π (पाय) या ग्रीक अक्षराने दर्शवितात.

(ब) π हे गुणोत्तर अखंड आवर्ती असून त्याची निश्चित किंमत $\frac{22}{7}$ ($\pi = \frac{22}{7}$) आहे.

पर्याय

(1) विधान अ आणि ब चूक

(2) विधान अ आणि ब बरोबर

(3) विधान अ बरोबर परंतु ब चूक

(4) विधान अ चूक परंतु ब बरोबर

94. खाली काही विधाने दिली आहेत. त्यावरून योग्य पर्याय निवडा.

(A) X - अक्षाला समांतर रेषेचा चढ $\frac{x_2 - x_1}{y_2 - y_1}$ या सूत्राने काढतात.

(B) Y - अक्षाला समांतर रेषेचा चढ 1 असतो.

(C) रेषेने X - अक्षाच्या धन दिशेशी केलेल्या कोनाचे कोटॅजन्ट (cotangent) गुणोत्तर म्हणजे त्या रेषेचा चढ असतो.

(D) X - अक्षाशी लघुकोन करणाऱ्या रेषेचा चढ शून्यापेक्षा लहान तर विशालकोन करणाऱ्या रेषेचा चढ शून्यापेक्षा मोठा असतो.

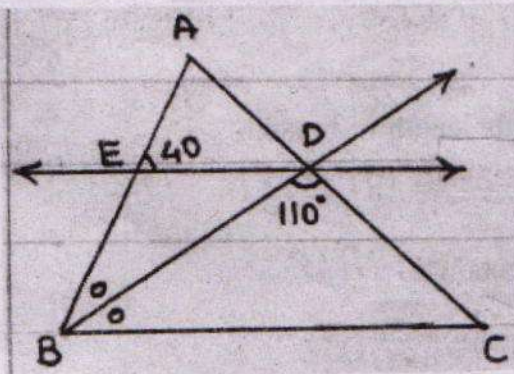
(1) विधान A व B बरोबर

(2) विधान C व D बरोबर

(3) फक्त विधान C चूक आहे.

(4) सर्व विधाने चूक आहेत.

95. आकृतीमध्ये किरण BD हा $\triangle ABC$ च्या कोन $\angle B$ चा दुभाजक आहे. रेषा $ED \parallel$ बाजू BC आणि $m\angle AED = 40^\circ$ व $m\angle BDC = 110^\circ$ असेल तर $\angle EDB$ व $\angle DCB$ ची अनुक्रमे मापे कोणती आहेत ?



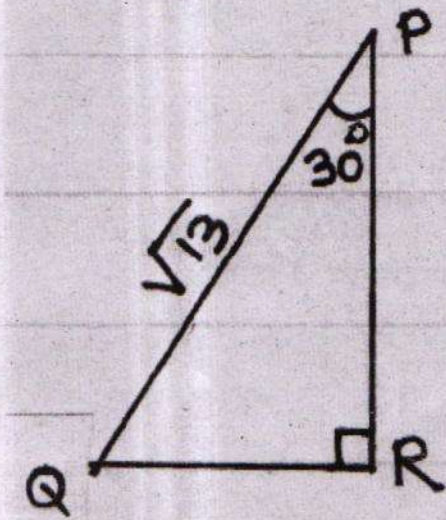
(1) 20° व 50°

(2) 50° व 20°

(3) 40° व 50°

(4) 40° व 70°

96. In ΔPQR $M\angle R = 90^\circ$, $M\angle P = 30^\circ$ $PQ = \sqrt{13}$. From the given information find the value of $\operatorname{cosec}60^\circ - \sec 60^\circ$?



(1) $\left(\frac{2}{\sqrt{3}} - \frac{1}{\sqrt{3}}\right)$

$\frac{2}{\sqrt{3}} - \frac{1}{\sqrt{3}}$

(2) $\left(\frac{\sqrt{13}}{2} - \frac{\sqrt{39}}{2}\right)$

2

(3) $\left(\frac{\sqrt{39}}{2} - \frac{\sqrt{13}}{2}\right)$

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

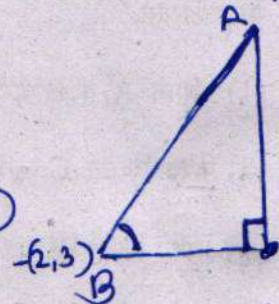
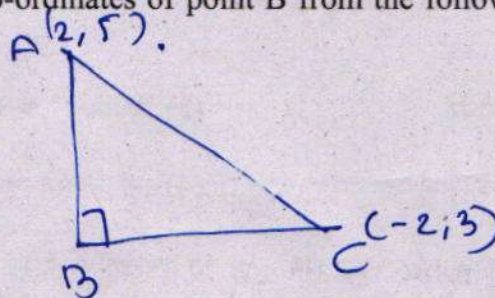
97. In right angled triangle ABC $M\angle B = 90^\circ$ ΔABC is in the first and second quadrant on the graph paper. The co-ordinates of the points A and C are (2, 5) and (-2, 3) respectively. Find the possible pairs of co-ordinates of point B from the following alternatives (2, 5)

(1) (-2, 5) or (2, 3)

(2) (5, -2) or (3, 2)

(3) (-2, 2) or (5, 3)

(4) (2, -2) or (5, 3)



98. Choose the correct figure that has all the following properties.

(A) Both the diagonals are congruent

(B) It is called as rectangle

(C) The perimeter of the figure is four times its length or breadth

(D) It is a rhombus

(1) Rhombus

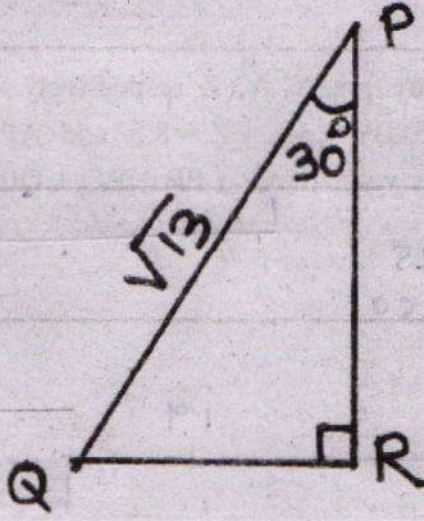
(2) Rectangle

(3) Trapezium

(4) Square

$\frac{2}{4} \quad \frac{1}{2}$

96. त्रिकोण PQR मध्ये $m\angle R = 90^\circ$, $m\angle P = 30^\circ$ आणि $PQ = \sqrt{13}$ दिले आहे. दिलेल्या माहितीवरून $\operatorname{cosec}60^\circ - \sec60^\circ$ ची किंमत किती येईल ?



(1) $\left(\frac{2}{\sqrt{3}} - \frac{1}{\sqrt{3}}\right)$

(2) $\left(\frac{\sqrt{13}}{2} - \frac{\sqrt{39}}{2}\right)$

(3) $\left(\frac{\sqrt{39}}{2} - \frac{\sqrt{13}}{2}\right)$

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

97. काटकोन त्रिकोण ABC मध्ये $m\angle B = 90^\circ$ हा ΔABC आलेख कागदावरील आलेखात पहिल्या व दुसऱ्या चरणात समाविष्ट आहे. बिंदू A व C चे निर्देशक अनुक्रमे (2, 5) व (-2, 3) असतील तर बिंदू B च्या निर्देशकाच्या संभाव्य जोड्या खालील पर्यायातून शोधा.

(1) (-2, 5) किंवा (2, 3)

(2) (5, -2) किंवा (3, 2)

(3) (-2, 2) किंवा (5, 3)

(4) (2, -2) किंवा (5, 3)

98. पुढे दिलेल्या सर्व गुणधर्मांवरून योग्य आकृती ओळखा.

(A) त्याचे दोन्ही कर्ण एकरूप असतात.

(B) त्याला काटकोन चौकोन म्हणतात.

(C) त्याची परिमिती लांबी किंवा रुंदीच्या चारपट असते.

(D) तो समभुज चौकोन असतो.

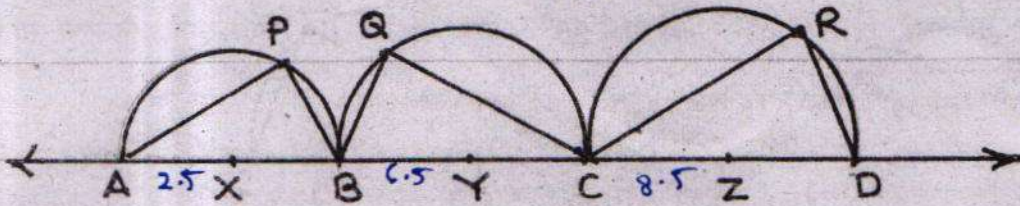
(1) समभुज चौकोन

(2) आयत

(3) समलंब चौकोन

(4) चौरस

99.



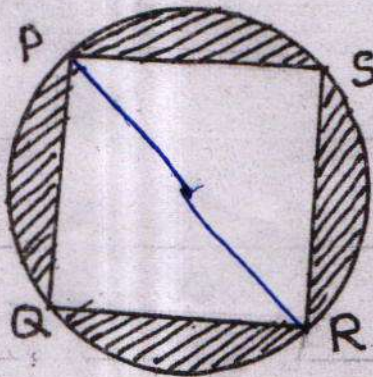
In the figure, semi-circles are drawn whose centre are X, Y, Z respectively. Points (X, Y, Z); are collinear points (X - Y - Z) $AX = 2.5$, $BY = 6.5$, $CZ = 8.5$ and $AP + QC = 16$; $QC + CR = 27$ and $CR + AP = 19$ then find the value of $AP + PB + BQ + QC + CR + RD = ?$

$AP^2 + PB^2 = 25$
 $QC^2 + CR^2 = 169$

- (1) 37
- (2) 41
- (3) 53
- (4) 47

19

100.



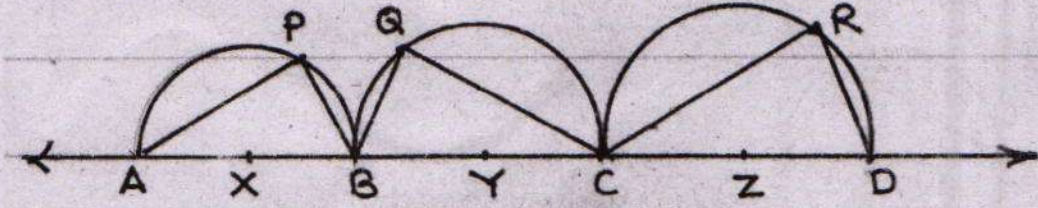
In the figure $PQRS$ is a cyclic quadrilateral.

If the area of the shaded part is $\frac{72}{7}$ sq. units then find the radius of the circle.

- (1) $\sqrt{7}$ units
- (2) 4 units
- (3) 3 units
- (4) 2 units

$2\pi r^2 - a^2 = \frac{72}{7}$
 $a^2 \left[\frac{22}{7} - 1 \right] = \frac{72}{7}$
 $\sqrt{2}a$ $a^2 \cdot 15 = 72$
 $a^2 = \frac{72 \cdot 24}{15 \cdot 5}$
 $2\pi r^2 > 4a^2$
 $2\pi \times 2r^2 - 4a^2 = \frac{72}{7}$
 $\Delta a^2 [\pi - 1] = \frac{77}{7}$
 $4a^2 = \frac{77}{7}$ $a^2 = \frac{77}{15 \times 4}$

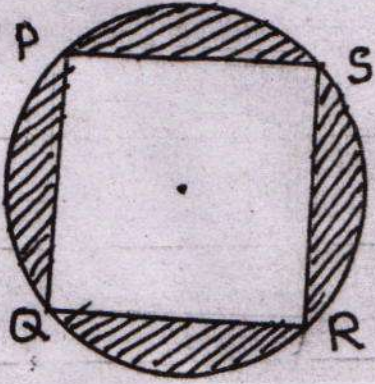
99.



आकृतीमध्ये X, Y, Z केंद्रबिंदु असणारी अर्धवर्तुळे दाखविली आहेत. बिंदू X, Y, Z एकरेषीय आहेत. $(X - Y - Z)$; $AX = 2.5$, $BY = 6.5$ व $CZ = 8.5$ आणि $AP + QC = 16$; $QC + CR = 27$ व $CR + AP = 19$ असेल तर $AP + PB + BQ + QC + CR + RD =$ किती ?

- (1) 37
- (2) 41
- (3) 53
- (4) 47

100.



आकृतीमध्ये PQRS हा चक्रीय चौस दाखविला आहे. जर रेखांकित भागाचे क्षेत्रफळ $\frac{72}{7}$ असेल तर, वर्तुळाची त्रिज्या किती ?

- (1) $\sqrt{7}$ एकक
- (2) 4 एकक
- (3) 3 एकक
- (4) 2 एकक