Date : 03/11/2019

Test Booklet Code

E

TELANGANA

Aakash

Medical | IIT-JEE | Foundations

(Divisions of Aakash Educational Services Limited)

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

Answers & Solutions

for

NTSE (Stage-I) 2019-20

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you open the question booklet.

1. Use blue/black ballpoint pen only. There is no negative marking.
2. Part I : MAT : 1 - 100 questions

   Part II : SAT : 1 - 100 questions
3. This test booklet contains 200 questions of one mark each. All the questions are compulsory.
4. Answer each question by darkening the one correct alternative among the four choices on the OMR SHEET with blue/black ballpoint pen.

   Example :

	Q. No.	Alternatives
Correct way :	1	① ② ● ④
	Q. No.	Alternatives
Wrong way :	1	⊗ ② ③ ④

   Student must darkening the right oval only after ensuring correct answer on OMR Sheet.
5. Students are not allowed to scratch / alter / change out an answer once marked on OMR Sheet, by using white fluid / eraser / blade / tearing / wearing or in any other form.
6. Separate sheet has been provided for rough work in this test booklet.
7. Please handover the OMR Sheet to the invigilator before leaving the Examination Hall.
8. Darken completely the ovals of your answer on OMR Sheet in the time limit allotted for that particular paper.
9. Your OMR Sheet will be evaluated through electronic scanning process. Incomplete and incorrect entries may render your OMR Sheet invalid.
10. Use of electronic gadgets, calculator, mobile etc, is strictly prohibited.

PART-I : MENTAL ABILITY TEST (MAT)

Directions (Q.1 to Q5) : In the Number series given below, one Number is missing. Each series is followed by 4 alternatives (1), (2), (3), (4). One of them is the right answer. Identify and indicate it as per the "Instructions".

1. 6, 28, 120, 496, ….
   (1) 1035 (2) 2016
   (3) 2019 (4) 1234

Answer (2)

Sol. 6, 28, 120, 496, (2016)
×4+4 ×4+8 ×4+16 ×4+32

2. 1, 5, 15, 34, 65, ….
   (1) 111 (2) 76
   (3) 87 (4) 104

Answer (1)

Sol. 1, 5, 15, 34, 65, (111)
4 10 19 31 46 (1)
6 9 12 15

3. 1, 43, 161, 407, …
   (1) 745 (2) 614
   (3) 829 (4) 725

Answer ()

Sol. Given series is incorrect,
if series would be 5, 43, 161, 407, …
$(1^3+2^2, 3^3+4^2, 5^3+6^2, 7^3+8^2, 9^3+10^2)$
5 43 161 407 (829)
Then answer will be option (3)

4. 7, 31, 211, 2311
   (1) 12 (2) 18641
   (3) 20141 (4) 30031

Answer (4)

Sol. 7, 31, 211, 2311, (30031)
×5–4 ×7–6 1–10 13–12

5. 5, 23, 72, ….
   (1) 181 (2) 175
   (3) 96 (4) 124

Answer (1)

Sol. (2+3), (5+7+11), (13+17+19+23), (29+31+37+41+43)

Directions (Q.6 to Q.10) : In each of the following Questions, a letter series is given in which some letters are missing. The missing letters are given in the proper sequence as one of the alternatives. Find the correct alternative.

6. _ _ aba _ _ ba _ ab
   (1) abbba (2) abbab
   (3) baabb (4) bbaba

Answer (2)

Sol. abbab

7. ab _ _ _ b _ bbaa _
   (1) abaab (2) abbab
   (3) baaab (4) babba

Answer (3)

Sol. baaab

8. _ baa _ aab _ a _ a
   (1) aabb (2) aaba
   (3) abab (4) baab

Answer (3)

Sol. abab

9. _ _ babbbaa _ a _ _
   (1) ababb (2) baaab
   (3) bbaba (4) babbb

Answer (1 or 3)

Sol. ababb or bbaba

10. _ op _ mo _ n _ _ pnmop _
    (1) mnpmon (2) mpnmop
    (3) mnompn (4) mnpomn

Answer (1)

Sol. Mnpmon

Directions (Q.11 to Q.15) : In the following alphabet series, a term is missing as shown by Question mark (?). Choose the missing term from options.

11. eac, gce, ieg, ?
    (1) jhi (2) jgi
    (3) kgi (4) khi

Answer (3)

Sol. e a c, g c e, i e g, (k g i)
+2 +2 +2
1 3 5 7
5 3 7 5 9 7 11 9
+2 +2 +2 +2 +2 +2

12. ejo, tyd, ins, xch, ?
    (1) nrw (2) mrw
    (3) msx (4) nsx

Answer (2)

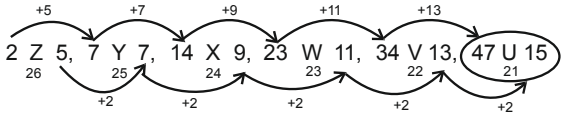
Sol. e j o, t y d, I n s, x c h, (m r w)
+15 +15 +15 +15

13. 2Z5, 7Y7, 14X9, 23W11, 34V13,?

(1) 27U24 (2) 47U15

(3) 45U15 (4) 47V14

Answer (2)

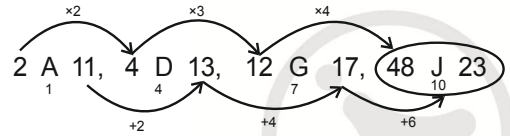
Sol. 

14. 2A11, 4D13, 12G17,?

(1) 36I19 (2) 48J21

(3) 36J21 (4) 48J23

Answer (4)

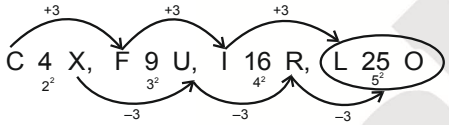
Sol. 

15. C4X, F9U, I16R, ?

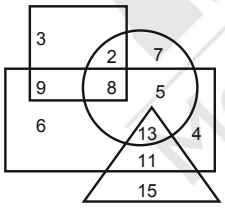
(1) K25P (2) L25P

(3) L25O (4) L27P

Answer (3)

Sol. 

Directions (Q.16 to Q.20) : Observe the diagram carefully and then answer the following Questions. Here, **rectangle** represents males, **triangle** represents the people who did PhD, circle represents Urban and **square** represents civil servants.



16. How many urban male civil servants are there?

(1) 8 (2) 26

(3) 11 (4) 39

Answer (1)

Sol. 8

17. How many female PhD are there?

(1) 39 (2) 11

(3) 15 (4) 26

Answer (3)

Sol. 15

18. How many urban male PhD civil servants are there ?

(1) 10 (2) 8

(3) 13 (4) None of these

Answer (4)

Sol. None of these

19. How many urban female civil servants are there ?

(1) 3 (2) 2

(3) 7 (4) 15

Answer (2)

Sol. 2

20. How many urban male PhD are there ?

(1) 15 (2) 13

(3) 39 (4) None of these

Answer (2)

Sol. 13

Directions (Q.21 to Q.25): In each of the following Questions, the two expressions on either side of sign (=) will have the same value. If two terms on either side or on the same side are interchanged, the correct terms to be interchanged have been given as one of the alternatives under the expressions. Find the correct alternative in each case.

21. $5 + 3 \times 6 - 4 \div 2 = 4 \times 3 - 10 \div 2 + 7$

(1) 4, 7 (2) 5, 7

(3) 6, 4 (4) 6, 10

Answer (3)

Sol. $5 + 3 \times 4 - 6 \div 2 = 4 \times 3 - 10 \div 2 + 7$

22. $7 \times 2 - 3 + 8 \div 4 = 5 + 6 \times 2 - 24 \div 3$

(1) 2, 6 (2) 6, 5

(3) 3, 24 (4) 7, 6

Answer (4)

Sol. $6 \times 2 - 3 + 8 \div 4 = 5 + 7 \times 2 - 24 \div 3$

23. $15 + 3 \times 4 - 8 \div 2 = 8 \times 5 + 16 \div 2 - 1$

(1) 3, 5 (2) 15, 5

(3) 15, 16 (4) 3, 1

Answer (1)

Sol. $15 + 5 \times 4 - 8 \div 2 = 8 \times 3 + 16 \div 2 - 1$

24. $6 \times 3 + 8 \div 2 - 1 = 9 - 8 \div 4 + 5 \times 2$

(1) 3, 4 (2) 3, 5

(3) 6, 9 (4) 9, 5

Answer (4)

Sol. $6 \times 3 + 8 \div 2 - 1 = 5 - 8 \div 4 + 9 \times 2$

25. $8 \div 2 \times (-11) + 9 = 6 \times 2 - 5 + 4 \div 2$

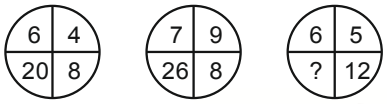
(1) 5, 9 (2) 8, 5

(3) 9, 6 (4) 11, 5

Answer ()

Sol. No option is correct

Directions (Q.26 to Q.30) : In this type of Questions, a figure or-a matrix is given in which some numbers are filled according to a rule. A place is left blank with Question mark. Find out which number will replace the Question mark (?) from given options.

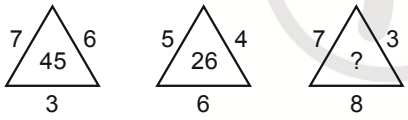
26. 

(1) 23 (2) 25

(3) 18 (4) 22

Answer (2)

Sol. 6+4+8+2= 20, 7+9+8+2=26, 6+5+12+2=25

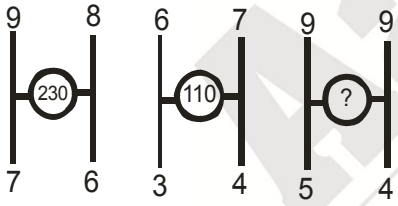
27. 

(1) 29 (2) 42

(3) 36 (4) 28

Answer (1)

Sol. 7×6+3=45, 5×4+6=26, 7×3+8=29

28. 

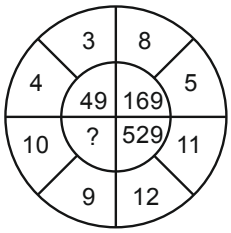
(1) 186 (2) 175

(3) 158 (4) 211

Answer (3)

Sol. $9^2+8^2+7^2+6^2 = 230$, $6^2+7^2+4^2+3^2 = 110$,

$9^2+6^2+5^2+4^2 = 158$

29. 

(1) 441 (2) 324

(3) 462 (4) 361

Answer (4)

Sol. $(10+9)^2 = 361$

30.

9	17	16
5	4	8
5	4	?
9	17	8

(1) 5 (2) 4

(3) 8 (4) 6

Answer (2)

Sol. 16/8= 8/4

Directions (Q.31 to Q.35) : Arrange the words given below in a meaningful sequence and choose correct answer from the 4 options.

31. 1.Key, 2. Door, 3. Lock, 4 Room, 5. Switch on.

(1) 5, 1, 2, 4, 3 (2) 4, 2, 1, 5, 3

(3) 1, 3, 2, 4, 5 (4) 1, 2, 3, 4, 5

Answer (3)

Sol. 1, 3, 2, 4, 5

32. 1.Word, 2.Paragraph, 3.Sentence , 4.Letters, 5.Phrase.

(1) 4, 1, 5, 2, 3 (2) 4, 1, 3, 5, 2

(3) 4, 2, 5, 1, 3 (4) 4, 1, 5, 3, 2

Answer (4)

Sol. 4, 1, 5, 3, 2

33. 1.Police, 2.Punishment, 3.Crime, 4.Judge, 5.Judgement

(1) 3, 1, 2, 4, 5 (2) 3, 1, 2, 5, 4

(3) 3, 1, 4, 2, 5 (4) 3, 1, 4, 5, 2

Answer (4)

Sol. 3, 1, 4, 5, 2

34. 1.Family, 2.Community, 3.Member, 4.Locality, 5.Country.

(1) 3, 1, 2, 4, 5 (2) 3, 1, 2, 5, 4

(3) 3, 1, 4, 2, 5 (4) 3, 1, 4, 5, 2

Answer (1)

Sol. 3, 1, 2, 4, 5

35. 1.Poverty, 2.Population, 3.Death, 4.Unemployment, 5.Disease.

(1) 2, 3, 4, 5, 1 (2) 3, 4, 2, 5, 1

(3) 2, 4, 1, 5, 3 (4) 1, 2, 3, 4, 5

Answer (3)

Sol. 2, 4, 1, 5, 3

Directions (Q.36 to Q.40) : Find out the relationship between the first two words and choose the word from the given alternative, which bears the same relationship to the third word, as the first two bear.

36. Funk : Vitamins :: Curie : ?
    (1) Uranium (2) Radium
    (3) Radioactivity (4) Photography

Answer (2)

Sol. Radium

37. Virology : Virus :: Semantics : ?
    (1) Amoeba (2) Language
    (3) Nature (4) Society

Answer (2)

Sol. Language

38. Pituitary : Brain :: Thymus : ?
    (1) Larynx (2) Spinal Cord
    (3) Throat (4) Chest

Answer (4)

Sol. Chest

39. Vine : Grapes :: Poppy : ?
    (1) Opium (2) Tobacco
    (3) Pears (4) Pineapple

Answer (1)

Sol. Opium

40. Karnataka: Gold
    :: Madhya Pradesh:?
    (1) Diamond (2) Iron
    (3) Copper (4) Gems

Answer (1)

Sol. Diamond

Directions (Q.41 to Q.45) : In these Questions, one word is coded according to a particular pattern and the candidate is asked to give the code letters for the another word following the same pattern.

41. In a certain code, LAWN is written as JCUP. How will SLIT be coded in that code?
    (1) QNGV (2) QJGV
    (3) QNVG (4) NJGV

Answer (1)

Sol. QNGV

42. In a given code, SISTER is coded as 535301. UNCLE as 84670 and BOY as 129. How is RUSTIC written in the code ?
    (1) 633185 (2) 185336
    (3) 363815 (4) 581363

Answer (2)

Sol. 185336

43. In a certain code, LONG is written as 5123 and GEAR is written as 3748. How is LANE written in that code ?
    (1) 5427 (2) 5247
    (3) 5847 (4) 5237

Answer (1)

Sol. 5427

44. In a certain code, READ is written as #5%6 and PAID is written as $%46. How is RIPE written in that code ?
    (1) #4$5 (2) #6$5
    (3) $4#5 (4) $4#6

Answer (1)

Sol. #4$5

45. In a code, CORNER is written as GSVRIV How can CENTRAL be written in that code ?
    (1) DFOUSBM (2) GIRXVEP
    (3) GNFJKER (4) None of these.

Answer (2)

Sol. GIRXVEP

Directions (Q.46 to Q.49) : In each of the following Questions, four words are given. Which one of them will come in the third position, if all of them are arranged alphabetically as in a dictionary?

46. 1. Bishop 2. Bifocal
    3. Bicycle 4. Bitter
    (1) Bishop (2) Bicycle
    (3) Bifocal (4) Bitter

Answer (1)

Sol. Bishop

47. 1. Parasite 2. Party
    3. Petal 4. Paste
    (1) Party (2) Paste
    (3) Parasite (4) Petal

Answer (2)

Sol. Paste

48. 1. Research 2. Rational
3. Round 4. Rustic
(1) Rational (2) Research
(3) Round (4) Rustic

Answer (3)

Sol. Round

49. 1. Nature 2. Native
3. Narrate 4. Diastole
(1) Native (2) Nature
(3) Narrate (4) Diastole

Answer (1)

Sol. Native

Directions (Q.50 to Q.55): From the given five groups of letters, four of them are similar to each other in some manner, while one is different and this is to be choosen from the four alternative answers.

50. DE, PQ, TU, MO, FG
(1) DE (2) PQ
(3) TU (4) MO

Answer (4)

Sol. MO

51. XW, FG, ML, PO, TS
(1) XW (2) FG
(3) ML (4) PO

Answer (2)

Sol. All follows Letter-1 except option-2

52. BD, MP, NQ, HK, TW
(1) BD (2) MP
(3) NQ (4) HK

Answer (1)

Sol. All follows Letter+3 except option-1

53. AE, AI, IO, EI, OU
(1) AE (2) AI
(3) IO (4) EI

Answer (2)

Sol. All follows consecutive vowels except-2

54. KP, MN, HR, GT, EV
(1) KP (2) MN
(3) HR (4) GT

Answer (3)

Sol. All are opposite pairs except option-3

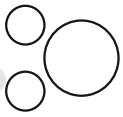
55. Monday, Tuesday, Thursday, Saturday
(1) Monday
(2) Tuesday
(3) Thursday
(4) Saturday

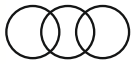
Answer (1)

Sol. All are even number of day's except-1

Directions (Q.56 to Q.60) :

56. Which of the following diagrams indicates the best relation between Hockey, Football and Cricket?

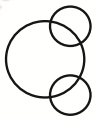
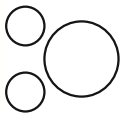
(1)  (2) 

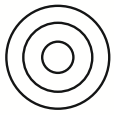
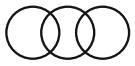
(3)  (4) 

Answer (2)

Sol. No Relation option -2

57. Which of the following diagrams indicates the best relation between Iron, Lead and Nitrogen?

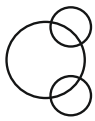
(1)  (2) 

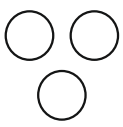
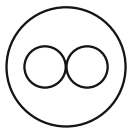
(3)  (4) 

Answer (2)

Sol. No Relation option-2

58. Which of the following diagrams indicates the best relation between Moon, Sun and Earth?

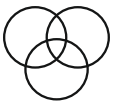
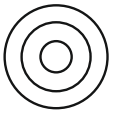
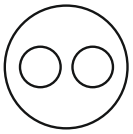
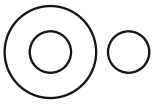
(1)  (2) 

(3)  (4) 

Answer (3)

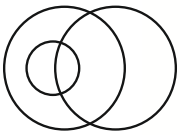
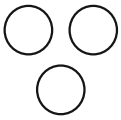
Sol. No Relation Option-3

59. Which of the following diagrams indicates the best relationship between Hospital, Nurse and Patient?

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

Answer (3)

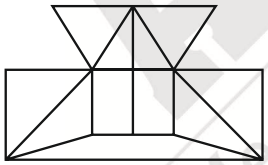
60. Which of the following diagrams indicates the best relationship between Mercury, Zinc and Metal?

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

Answer (2)

Directions (Q.61 to Q.65): These Questions are based on analytical reasoning.

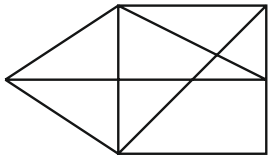
61. Find the minimum number of straight lines required to make the given figure.



(1) 16 (2) 17
(3) 18 (4) 19

Answer (2)

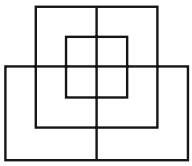
62. The number of triangles in the figure



(1) 12 (2) 13
(3) 14 (4) 15

Answer (4)

63. Find the number of straight lines required to make the given figure



(1) 13 (2) 15
(3) 17 (4) 19

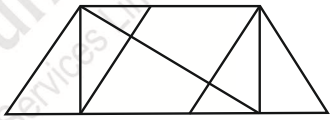
Answer (1)

64. The number of triangles in the given figure

(1) 22 (2) 24
(3) 26 (4) 28

Answer (4)

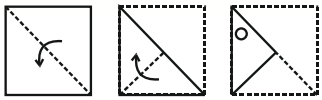
65. The number of triangles in the given figure.

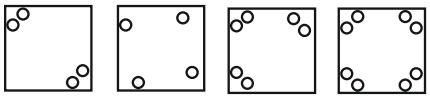


(1) 8 (2) 10
(3) 12 (4) 14

Answer (4)

Directions (Q.66 to Q.70) : Each of the following Questions consists of a set of three figures X, Y and Z showing a sequence of folding of a piece of paper. Figure (Z) shows the manner in which the folded paper has been cut. These three figures are followed by four answer figures from which you have to choose a figure which would mostly closely resemble the unfolded form of figure (Z).

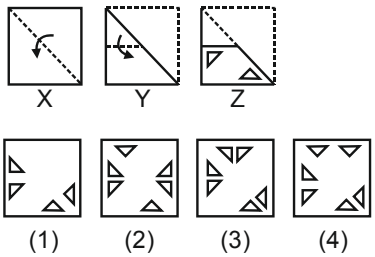
66. 
X Y Z


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

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

Answer (1)

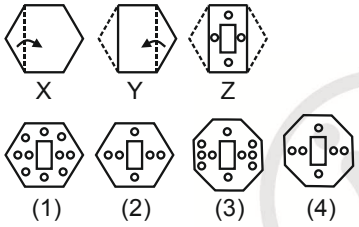
Sol. When un folded top left corner and bottom right corner have two circles

67. 

(1) 1 (2) 2

(3) 3 (4) 4

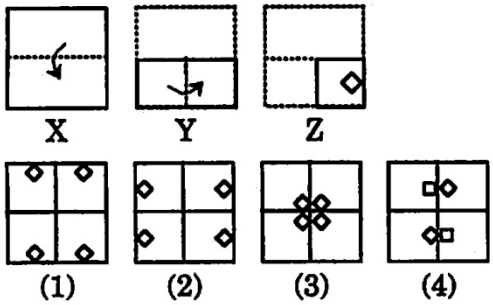
Answer (3)

68. 

(1) 1 (2) 2

(3) 3 (4) 4

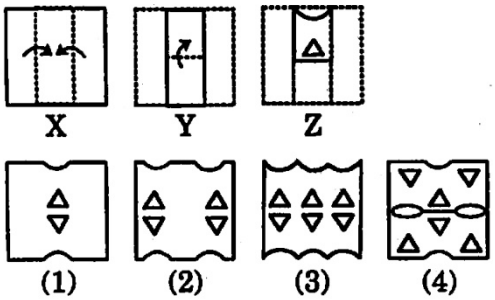
Answer (4)

69. 

(1) 1 (2) 2

(3) 3 (4) 4

Answer (2)

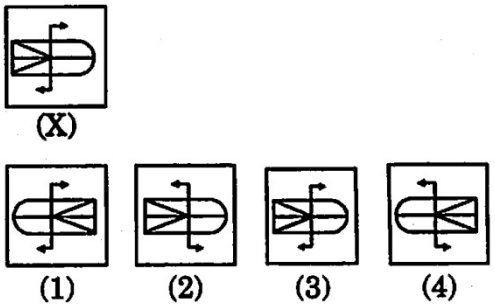
70. 

(1) 1 (2) 2

(3) 3 (4) 4

Answer (3)

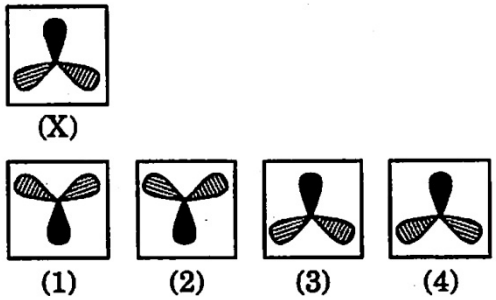
Directions (Q.71 to Q.75): In each of the following questions, choose the correct mirror images of the given fig. (X) from amongst the four alternatives (1), (2), (3), (4) given along with it. Mirror is placed right to each figure.

71. 

(1) 1 (2) 2

(3) 3 (4) 4

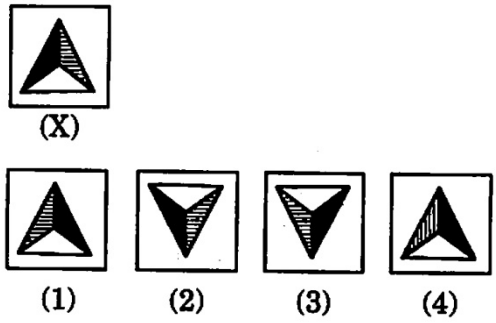
Answer (4)

72. 

(1) 1 (2) 2

(3) 3 (4) 4

Answer (4)

73. 

(1) 1

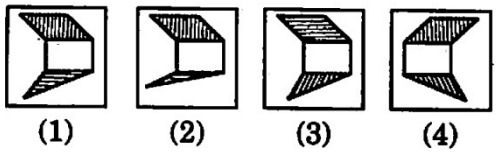
(2) 2

(3) 3

(4) 4

Answer (1)

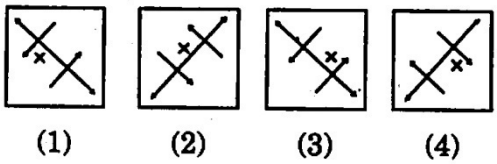
74. 
(X)


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

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

Answer (1)

75. 
(X)

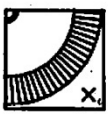
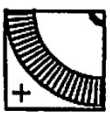

(1) (2) (3) (4)

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

Answer (2)

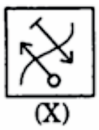
Directions (Q.76 to Q.80): The reflection of an object as seen in water is called its water image. It is the inverted image. Find the water image of the figure (X) from the four alternative answers.

76. 
(X)

(a) 
(b) 
(c) 
(d) 

(1) a
(2) b
(3) c
(4) d

Answer (4)

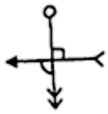
77. 
(X)

(a) 
(b) 
(c) 
(d) 

(1) a (2) b
(3) c (4) d

Answer (3)

78. 
(X)

(a) 
(b) 
(c) 
(d) 

(1) a (2) b
(3) c (4) d

Answer (2)

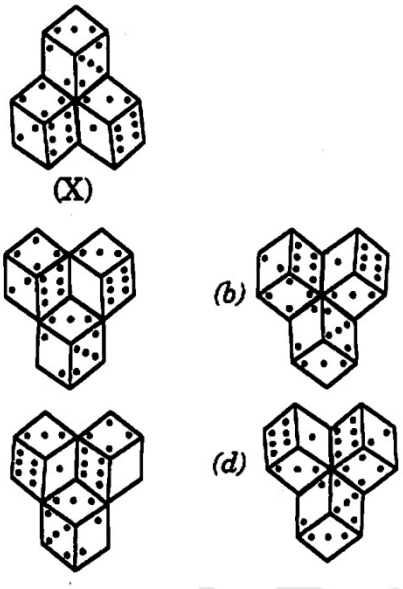
79. 
(X)

(a) 
(b) 
(c) 
(d) 

(1) a
(2) b
(3) c
(4) d

Answer (2)

80.



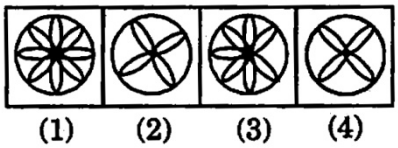
(1) a (2) b

(3) c (4) d

Answer (2)

Directions (Q.81 to Q.85) : In each of the following questions, choose the figure which is different from the rest.

81.



(1) 1

(2) 2

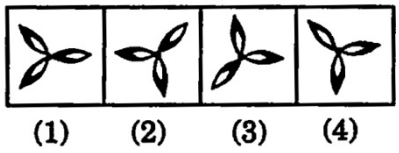
(3) 3

(4) 4

Answer (3)

Sol. No equal distribution in option-3

82.



(1) 1

(2) 2

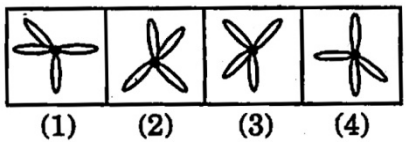
(3) 3

(4) 4

Answer (4)

Sol. Unshaded portion is 2:1 (in and out) except-1

83.

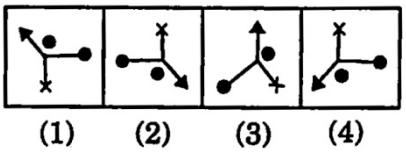


(1) 1 (2) 2

(3) 3 (4) 4

Answer (1)

84.



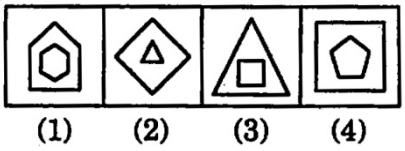
(1) 1 (2) 2

(3) 3 (4) 4

Answer (3)

Sol. Dot is between arrow and Dot except-3

85.



(1) 1 (2) 2

(3) 3 (4) 4

Answer ()

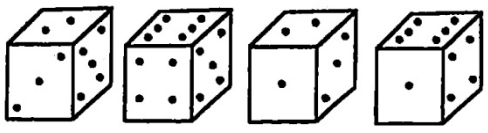
Sol. Option (2) & (4) both are correct.

(2) No of lines in outer figure is one less then inner figure except-2

(4) Sum of sides of given polygons is a prime number except in option (4)

Directions (Q.86 to Q.90) :

86. How many points will be on the face opposite to face, which contains 2 points ?



(1) 1

(2) 5

(3) 4

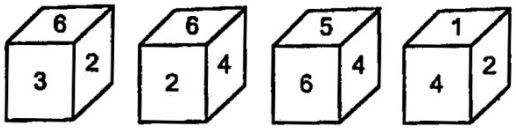
(4) 6

Answer (4)

Sol. In first two position of dice one number is common, when we taken in clock wise direction we get 5,3,2

1 4 6

87. Which number is on the face opposite to 6 ?



(1) 4 (2) 1

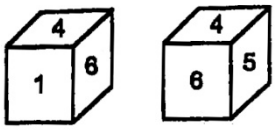
(3) 2 (4) 5

Answer (2)

Sol. In 1 & 3 position of dice one number is common, when we taken in clock wise direction we get 6,2,3

1 5 4

88. Two positions of a dice are shown below. When number '1' is on the top, what number will be at the bottom?



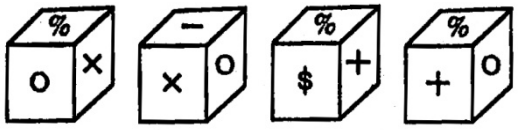
(1) 3 (2) 5

(3) 2 (4) 6

Answer (2)

Sol. In 1 & 2 position of dice two numbers are common, we get 1 opposite 5

89. Here 4 positions of a cube are shown. Which sign will be opposite to '+' ?



(1) % (2) –

(3) x (4) $

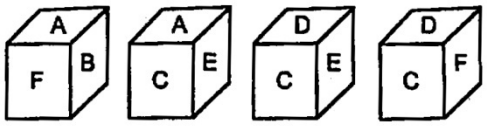
Answer (3)

Sol. In 2 & 4 position of dice one number is common, when we taken in clock wise direction

we get O X –

$ + %

90. The position of a cube are shown below. Which letter will be on the face opposite to face with A?



(1) D (2) B

(3) C (4) F

Answer ()

Sol. In 1 & 4 position of dice one number is common, when we taken in clock wise direction

we get F A B

E C D

In 1 & 2 position of dice one number is common, when we taken in clock wise direction

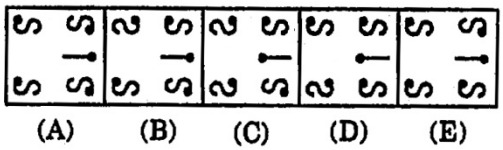
we get A B F

D E C

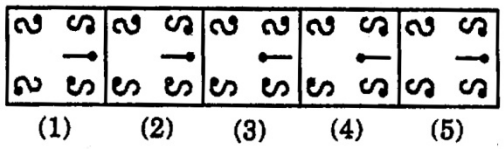
Hence, option (1) & (3) are correct.

Directions (Q.91 to Q.95) : Each of the following questions consists of five figures marked A, B, C, D and E called the **problem** figures; followed by five other figures marked *1,* 2, 3, 4 and 5 called the **answer** figures. Select a figure which will continue the same series as established by the five problem figures

91. ***Problem figures***



Answer figures

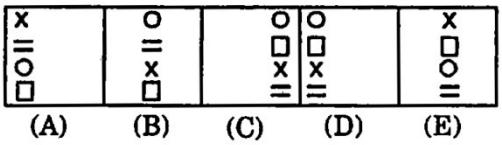


(1) 1 (2) 2

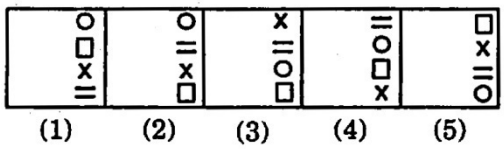
(3) 3 (4) 4

Answer (2)

92. ***Problem figures***



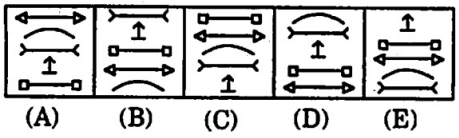
Answer figures



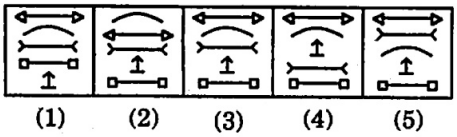
(1) 1 (2) 2
(3) 3 (4) 4

Answer (3)

93. ***Problem figures***



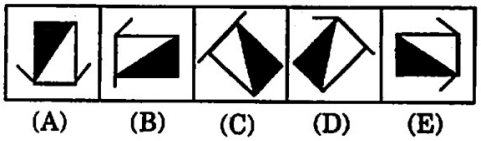
Answer figures



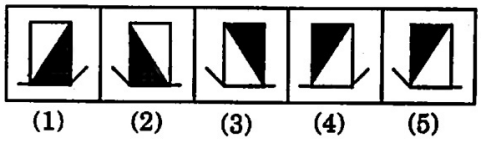
(1) 1 (2) 2
(3) 3 (4) 4

Answer (3)

94. ***Problem figures***



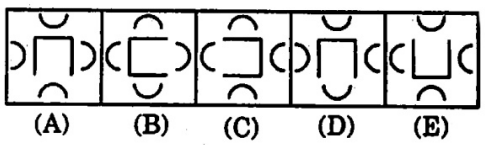
Answer figures



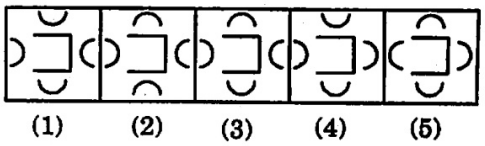
(1) 1 (2) 2
(3) 3 (4) 4

Answer (3)

95. ***Problem figures***



Answer figures

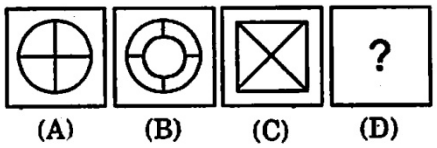


(1) 1
(2) 2
(3) 3
(4) 4

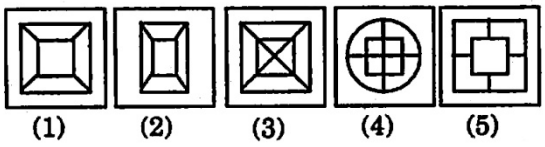
Answer (4)

Directions (Q.96 to Q.100) : Each of the following questions consists of two sets of figures. There is a definite relationship between figures A and B. Establish a similar relationship between figures C and D by selecting suitable figure from the answer set.

96. ***Problem figures***



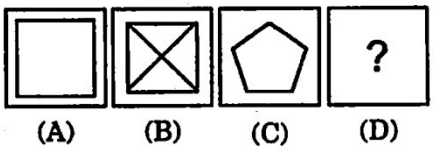
Answer figures



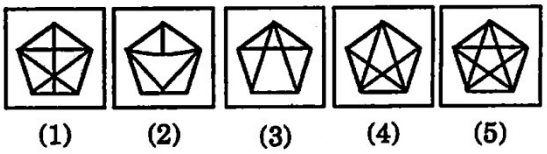
(1) 1
(2) 2
(3) 3
(4) 4

Answer (1)

97. ***Problem figures***



Answer figures



(1) 2

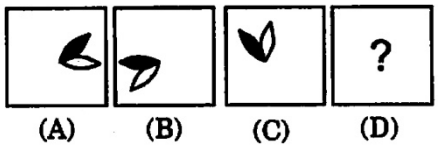
(2) 3

(3) 5

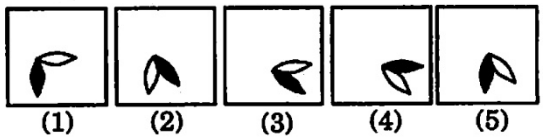
(4) 4

Answer (3)

98. **Problem figures**



Answer figures

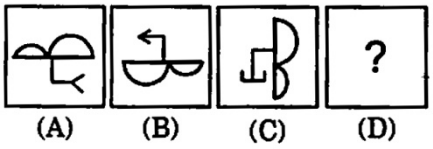


(1) 5 (2) 3

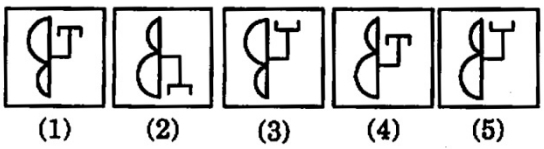
(3) 4 (4) 1

Answer (1)

99. ***Problem figures***



Answer figures



(1) 4

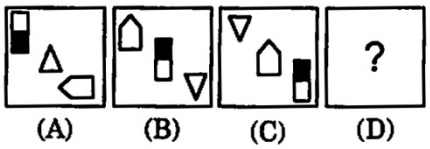
(2) 5

(3) 2

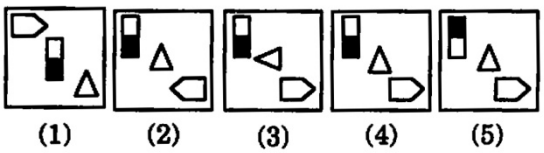
(4) 3

Answer (2)

100. ***Problem figures***



Answer figures



(1) 1

(2) 2

(3) 3

(4) 4

Answer (4)

PART-II : SCHOLASTIC APTITUDE TEST (SAT)

1. The speed of light in diamond is 1,24,000 km/sec. If the speed of light in air is 3,00,000 km/sec., then the refractive index of diamond will be...

(1) 1.49 (2) 2.42

(3) 2.25 (4) None

Answer (2)

Sol. Refractive index of diamond

$$= \frac{c}{V_d} = \frac{3,00,000 \text{ km/s}}{1,24,000 \text{ km/s}} = 2.42$$

2. Which of the following is Snell's law ?

(1) $n_1 \sin i = \frac{\sin r}{n_2}$ (2) $\frac{n_1}{n_2} = \frac{\sin r}{\sin i}$

(3) $\frac{n_2}{n_1} = \frac{\sin r}{\sin i}$ (4) $n_2 \sin i = \text{constant}$

Answer (2)

Sol. Snell's law $n_1 \sin i = n_2 \sin r$

$$\frac{n_1}{n_2} = \frac{\sin r}{\sin i}$$

3. A car moves with constant speed of 10 m/s in a circular path of radius 10 m. If the mass of the car is 1000 kg, then the centripetal force for the car is..

(1) 10^4 N (2) 10^6 N

(3) 10^5 N (4) None

Answer (1)

Sol. $F = \frac{mv^2}{R} = \frac{1000\,\text{kg}\,x\,(10\,\text{m/s})^2}{10\,\text{m}} = 10^4$ N

4. Two spherical balls of mass 10 kg each are placed with their centres 10 cm apart, then the gravitational force of attraction between them

(1) $G\times10^2$ N

(2) $G\times10^4$ N

(3) $G\times10^6$ N

(4) None

Answer (2)

Sol. $F = \frac{Gm_1m_2}{r^2} = \frac{Gx10\,\text{kg}\,x\,10\,\text{kg}}{(10^{-1}\,\text{m})^2} = Gx10^4$ N

5. If the acceleration of a moving object is constant, then the motion is said to be

(1) Constant speed (2) Uniform acceleration

(3) Uniform velocity (4) Instantaneous velocity

Answer (2)

Sol. Acceleration is constant

$\Rightarrow$ Uniform acceleration

6. Which of the following converts Mechanical energy into Electrical energy ?

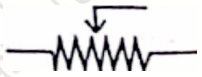
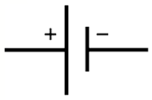
(1) Motor (2) Battery

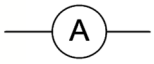
(3) Generator (4) Switch

Answer (3)

Sol. Generator converts mechanical energy into electrical energy.

7. Symbol for resistance.

(1)  (2) 

(3)  (4) 

Answer (3)

Sol. Symbol of resistance

8. If the bulb have 100 W and 220 V, then the resistance of the bulb is ...

(1) 284 Ω (2) 384 Ω

(3) 484 Ω (4) None

Answer (3)

Sol. $R = \frac{V^2}{P} = \frac{(220\text{ V})^2}{100} = 484\ \Omega$

9. If the focal length is +ve, then the lens is...

(1) Concave

(2) Convex

(3) Plane

(4) None

Answer (2)

Sol. Focal length of convex lens is positive

10. Size of image formed by a convex mirror is always …

(1) enlarged

(2) diminished

(3) equal to the size of the object

(4) None

Answer (2)

Sol. Convex mirror always forms virtual, erect and diminished image for a real object.

11. The energy possessed by a body by virtue of its motion is called.

(1) Potential energy (2) Kinetic energy

(3) Gravitational energy (4) None

Answer (2)

Sol. The energy possessed by a body by virtue of its motion is called kinetic energy.

12. S.I., unit of work.

(1) $N-m$ (2) Kg-m

(3) N/m (4) $N-m^2$

Answer (1)

Sol. S.I unit of work is N-m

13. A boy pushes a book kept on a table by applying a force of 4.5 N. Find the work done by the force, if the book is displaced through 30 cm along the direction of push.

(1) 1.10 J (2) 1.25 J

(3) 1.35 J (4) None

Answer (3)

Sol. $W = FxS$

$= 4.5\,N \times 0.3\,m = 1.35\,J$

14. Calculate the concentration in terms of mass by volume percentage of the solution, containing 2.5 g Potassium chloride in 50 ml of KCl solution.

(1) 2% (2) 10%

(3) 4% (4) 5%

Answer (4)

Sol. $\left(\frac{\text{Mass}}{\text{Volume}}\right)\% = \frac{\text{Mass of Solute (g)}}{\text{Volume of Solution(ml)}} \times 100$

$= \frac{2.5}{50} \times 100$

$= 5\%$

15. If the quantity of solute is more in a solution, then the solution is said to be

(1) Saturated solution

(2) Dilute solution

(3) Concentrated solution

(4) Unsaturated solution

Answer (3)

Sol. If the quantity of solute is more in solution then the solution is said to be concentrated solution.

16. A solution turns red litmus blue, its pH is likely to be-

(1) 1 (2) 4

(3) 5 (4) 10

Answer (4)

Sol. A Solution turns Red litmus blue, its p^H is likely to be = 10(*i.e*, Basic solution)

$\therefore$ p^H value of basic solutions is 7 to 14

17. The quantum number which explains about size and energy of the orbit or shell is

(1) n (2) l

(3) m_l (4) m_s

Answer (1)

Sol. Size and energy of orbit (or) shell is explained by Principal quantum number

i.e, Represented by 'n'

18. Number of elements present in period-2 of the long form of periodic table.

(1) 2 (2) 8

(3) 18 (4) 32

Answer (2)

Sol. Number of elements present in period-2 of the long form of periodic table is '8'

19. Number of covalent bonds in Methane molecules.

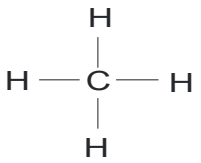
(1) 1 (2) 2

(3) 3 (4) 4

Answer (4)

Sol. No. of covalent bonds in methane CH_4 molecule

Structure of methane (CH_4) :



$\therefore$ Number of covalent bonds = 4

20. Chemical formula for Calcium sulphate hemihydrate is

(1) $CaSO_4$ (2) $CaSO_4.2H_2O$

(3) $CaSO_4.\frac{1}{2}H_2O$ (4) None

Answer (3)

Sol. Calcium sulphate hemihydrate is $\left(\text{hemi} = \frac{1}{2}\right)$

$CaSO_4.\frac{1}{2}H_2O$ (Plaster of Paris)

21. Law of conservation of mass was proposed by

(1) Lavoisier (2) Proust

(3) Dalton (4) None

Answer (1)

Sol. Law of conservation of mass was proposed by

Antone Laurent Lavoisier

22. Valency of Aluminium is

(1) 1 (2) 2

(3) 3 (4) 4

Answer (3)

Sol. Atomic number (z) of Al = 13

Electronic Configuration =2, 8, 3

$\therefore$ Valency = +3 or 3

23. The sum of the number of Protons and Neutrons in an atom is known as its

(1) Mass number (2) Atomic number

(3) Valency (4) None

Answer (1)

Sol. Mass number (A) = n + P

(n = neutrons, P = protons)

24. The valency of Neon is

(1) 2 (2) 6

(3) 2 and 6 (4) 0

Answer (4)

Sol. Atomic number (z) of Ne = 10

Electronic Configuration =2, 8

Valency = 8 – Valence electrons

= 8 – 8

= 0

$\therefore$ Valency = 0

25. Latent heat of Vapourisation of water

(1) 540 (2) 90

(3) 80 (4) 100

Answer (1)

Sol. Latent heat of vapourisation of water is

539 cal/g [~540]

26. Bleaching powder is represented by formula

(1) $NaHCO_3$ (2) Na_2CO_3

(3) $CaOCl_2$ (4) None

Answer (3)

Sol. Bleaching powder is represented by $CaOCl_2$

(i.e, calcium oxychloride)

27. There is a very yellow dust which comes away on fingers whenever we touch the middle of the flower. These tiny yellow grains are one of the most precious substances in nature because they contain the secret of plant life. What is the dust called?

(1) Pollen (2) Sperm

(3) Spore (4) Sporocyst

Answer (1)

Sol. Pollen grains are male gametes

28. Preparation of soil helps the soil to turn and loosen. This turning and loosening of soil is necessary as-

(1) The loose soil helps roots to breathe easily.

(2) The loose soil helps in the growth of earthworms and microbes present in the soil

(3) Nutrients held in the dead organisms are released back to the soil

(4) All the above

Answer (4)

Sol. Tilling of soil

29. The species of plant or animal which is found exclusively in particular area and is not found naturally anywhere else is known as-

(1) Endemic species

(2) Epidemic species

(3) Endomorphic species

(4) Entomorphic species

Answer (1)

Sol. Endemic species is found exclusively in particular area

30. Chipko movement (1974) was started in. …..

(1) Chamoli district of Uttarakhand

(2) Jabalpur district of Madhya Pradesh

(3) Jorhat district of Assam

(4) Kannur district of Kerala

Answer (1)

Sol. Conceptual

31. Which of the following matches is incorrect?

	Organelle	**Presence**
(1)	Ribosome	Plant and Animal Cell.
(2)	Mitochondria	Animal cell only.
(3)	Chloroplast	Plant cell only.
(4)	All of the above.	

Answer (2)

Sol. Mitochondria Present in both Animal and plant cells

32. Which of the following is incorrect about Dolly, the clone?

(1) It was cloned by Ian Wilmut and his colleagues.

(2) During the process of its cloning, the cell was collected from the udder of a female Finn Dorset sheep.

(3) It died its natural death

(4) It was given birth by the Scottish Blackface ewe.

Answer (3)

Sol. Dolly died due to pneumonia

33. Read the given statements and select the correct option.

Statement-I : In humans, the gamete contributed by the male determines whether the child produced will be the male or female.

Statement-II : Sex in humans is dependant on the X-chromosome or Y-chromosome of the father.

(1) Both Statement-I and II are true and Statement-II is the correct explanation of Statement-I

(2) Both Statements-I and II are true, Statement-II is not the correct explanation of Statement-I

(3) Statement-I is true and Statement-II is false

(4) Both Statements-I and II are false

Answer (2)

Sol. Male sperms contain either X or Y chromosome while ova always contain X chromosome

34. Why will marine organisms be affected, when there is an oil spillage at Sea?

(1) There will be a shortage of light and heat in the water

(2) There will be a shortage of Oxygen and excessive heat will be trapped in the water.

(3) There will be a shortage of Oxygen and the chemicals in the oil will affect marine organisms

(4) All the above are the correct reasons.

Answer (4)

Sol. Oil spillage leads to formation of oil layer on water leading to lack of O_2, shortage of light and heat which affects the living organisms in the water.

35. Which of the following describes Moulting?

(1) The Resting stage in the life cycle of a Silkworm.

(2) Change in appearance during the different stages in the life cycle of a Silkworm.

(3) Spinning of Cocoon.

(4) Casting off old skin

Answer (4)

Sol. Ecdysis – shedding of skin.

36. Match Column-I with Column-II and select the correct option from the codes given below.

Column-I	**Column-II**
(A) Ribosomes	(i) Jelly like substance.
(B) Lysosomes	(ii) Power house of the Cell.
(C) Endoplasmic Reticulum	(iii) Site of Protein synthesis.
(D) Cytoplasm	(iv) Transporting Tubules.
(E) Mitochondria	(v) Suicide Bags.

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

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

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

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

Answer (1)

Sol. Conceptual

37. Which of the following is incorrect match?
(1) Alexander Fleming – Penicillin.
(2) Louis Pasteur – Fermentation.
(3) Edward Jenner – Vaccination.
(4) Karl Landsteiner – Tissue Culture.

Answer (4)

Sol. Karl Landsteiner – ABO Blood grouping

38. Select the incorrect statement regarding AIDS.
(1) It is an immune - deficiency disease.
(2) HIV virus has RNA as its genetic material.
(3) HIV positive mother can give birth to HIV positive baby.
(4) The time lag between the infection and appearance of AIDS symptoms may vary from week to month.

Answer (4)

Sol. In AIDS Incubation period is six months to 10 years

39. Air pollutants are harmful to living things. Which of the following is/are their harmful effects?
(i) This forms acid rain.
(ii) They cause breathing problems in animals.
(iii) They cause interface with photosynthesis in plants.
(iv) They cause diseases in the respiratory system of man and animals.
(1) (i) only. (2) (i) and (ii) only.
(3) (i), (ii) and (iii). (4) (i), (ii), (iii) and (iv).

Answer (4)

Sol. Conceptual

40. Match the following.

(A) Oviparous	(i) Tadpole of Adult
(B) Metamorphosis	(ii) Birds
(C) Embryo	(iii) Fertilization outside the body
(D) External Fertilization	(iv) Developed Zygote.

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

Answer (1)

Sol. Conceptual

41. The value of satisfying the equation $5^2.5^4.5^6 ...5^{2x} = (0.04)^{-28}$ is ....
(1) 5 (2) 10
(3) 8 (4) 7

Answer (4)

Sol. $5^2.5^4.5^6.....5^{2x} = (0.04)^{-28}$

$$5^{2+4+6+....+2x} = \left(\frac{1}{25}\right)^{-28}$$

$$5^{2(1+2+3+...+x)} = 5^{+56}$$

$$\Rightarrow 1+2+3+....+x = 28$$

$$\frac{x(x+1)}{2} = 28$$

$$x(x+1) = 56$$

$$x^2 + x - 56 = 0$$

$$(x+8)(x-7) = 0$$

$$\Rightarrow x = 7 \qquad (\because x \neq -8)$$

42. The value of cosec(75 + θ) – sec(15 – θ) – (tan55 + θ) + cot(35 – θ) is
(1) –1 (2) 0
(3) 1 (4) $\frac{3}{2}$

Answer (2)

Sol. $\cos ec(75+\theta) - \cos ec(90-(15-\theta))$
$-\tan(55+\theta) + \tan(90-(35-\theta))$

$\Rightarrow \cos ec(75+\theta) - \cos ec(75+\theta)$
$-\tan(55+\theta) + \tan(55+\theta)$

= 0

43. The average age of three girls is 15 years. If their ages are in the ratio 3:5:7, then the age of the youngest girl among them is ...
(1) 12 years (2) 10 years
(3) 9 years (4) 8 years

Answer (3)

Sol. As per the question

$x_1 : x_2 : x_3 = 3 : 5 : 7$

$\Rightarrow x_1 = 3K$, $x_2 = 5K$, $x_3 = 7K$

Average age of 3 girls = 15 years

$\Rightarrow \frac{x_1 + x_2 + x_3}{3} = 15$

$\Rightarrow x_1 + x_2 + x_3 = 45$

$\Rightarrow 3K + 5K + 7K = 45$

$\Rightarrow 15K = 45$

$\Rightarrow K = 3$

$\therefore$ Ages of girls are 9 years, 15 years, 21 years

$\therefore$ Youngest girl among them is 9 years old

44. If $a + b + c = 0$, $a^2 + b^2 + c^2 = 10$, then the value of $a^4 + b^4 + c^4$ is ...

(1) 50 (2) 25

(3) 75 (4) 100

Answer (1)

Sol. Given $(a + b + c) = 0$

Squaring on both sides $(a+b+c)^2 = 0$

$a^2 + b^2 + c^2 + 2(ab + bc + ac) = 0$

$a^2 + b^2 + c^2 = -2(ab + bc + ac)$

$(\because a^2 + b^2 + c^2 = 10)$

$\Rightarrow ab + bc + ac = -5 \quad \cdots(1)$

Again squaring on both sides $(ab + bc + ac)^2 = 25$

$a^2b^2 + b^2c^2 + c^2a^2 + 2(ab^2c + bc^2a + ca^2b) = 25$

$a^2b^2 + b^2c^2 + c^2a^2 + 2(abc(a + b + c)) = 25$

$a^2b^2 + b^2c^2 + c^2a^2 + 0 = 25 \quad \ldots(2)$

$(\because a + b + c = 0)$

Now, $a^2 + b^2 + c^2 = 10$

Squaring on both sides $(a^2 + b^2 + c^2)^2 = 100$

$a^4 + b^4 + c^4 + 2(a^2b^2 + b^2c^2 + c^2a^2) = 100$

$a^4 + b^4 + c^4 + 50 = 100$

$\Rightarrow a^4 + b^4 + c^4 = 50$

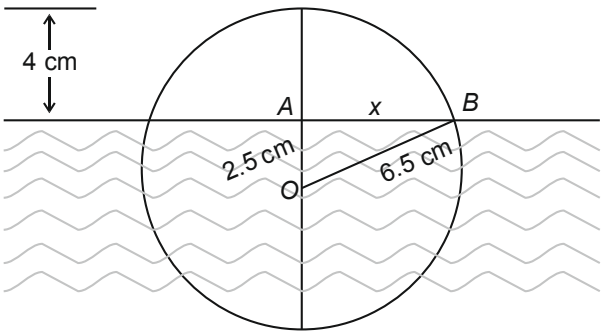
45. A ball of diameter 13 cm is floating in a pond. If the top of the ball is 4 cm above the surface of the pond, then the radius of the circle formed by the contact of water surface with the ball is ....

(1) 13 cm (2) 6.5 cm

(3) 6 cm (4) 9 cm

Answer (3)

Sol.



Let the radius of the circle formed by the contact of water surface with the ball is 'x'

In ΔOAB

$OB^2 = OA^2 + AB^2$

$(6.5)^2 = (2.5)^2 + x^2$

$x^2 = (6.5)^2 - (2.5)^2$

$x = \sqrt{(6.5)^2 - (2.5)^2}$

$\Rightarrow x = 6$ cm

46. If $\sqrt{1 + \frac{x}{289}} = 1\frac{1}{17}$, then the value of '$x$' is ...

(1) 1 (2) 13

(3) 15 (4) 35

Answer (4)

Sol. $\sqrt{1 + \frac{x}{289}} = 1\frac{1}{17}$

$\sqrt{\frac{289 + x}{289}} = \frac{18}{17}$

Squaring on both sides

$\frac{289 + x}{289} = \frac{324}{289}$

$\Rightarrow 289 + x = 324$

$x = 35$

47. If $3 \sin\theta + 5\cos\theta = 5$, then the value of $5\sin\theta - 3\cos\theta$ is ....

(1) 3 (2) 5

(3) $\frac{1}{3}$ (4) $\frac{1}{5}$

Answer (1)

Sol. $3\sin\theta + 5\cos\theta = 5$; $5\sin\theta - 3\cos\theta = ?$

Let $5\sin\theta - 3\cos\theta = x$

Squaring on both sides

$25\sin^2\theta + 9\cos^2\theta - 30\sin\theta\cos\theta = x^2 \quad \ldots(1)$

Given $3\sin\theta + 5\cos\theta = 5$

Again squaring on both sides

$9\sin^2\theta + 25\cos^2\theta + 30\sin\theta.\cos\theta = 25 \quad \ldots(2)$

(1) + (2)

$34\sin^2\theta + 34\cos^2\theta = 25 + x^2$

$34(1) = 25 + x^2$

$x^2 = 9$

$x = 3$

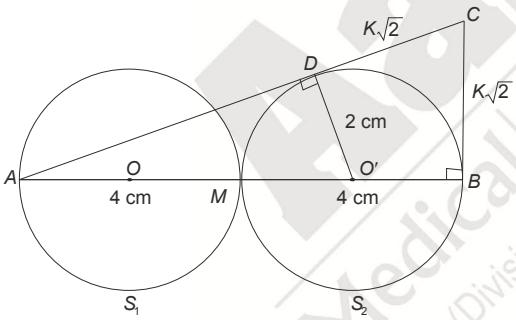
48. 'M' is mid-point of line segment *AB* of length 8 units. S_1, S_2 are two circles with AM and BM as diameters respectively, The tangent at *B* meets the tangent from *A* to circle S_2 at C. If $BC = K\sqrt{2}$, then the value of '*K*' is ...

(1) 1 (2) 2

(3) 3 (4) 4

Answer (2)

Sol.



In $\Delta AO'D$

$(AO')^2 = AD^2 + (O'D)^2$

$6^2 = AD^2 + 2^2$

$AD = \sqrt{32}$

Now, in ΔABC

$AC^2 = AB^2 + BC^2$

$\left(\sqrt{32} + k\sqrt{2}\right)^2 = 8^2 + \left(K\sqrt{2}\right)^2$

$32 + 2K^2 + 2\left(K\sqrt{2}\right)\left(\sqrt{32}\right) = 64 + 2K^2$

$16K = 32$

$K = 2$

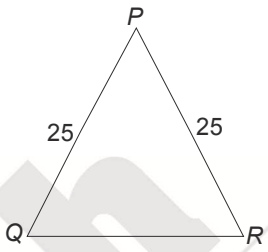
49. If '*A*' is the area of triangle with sides 25, 25 and 30 units and '*B*' is the area of triangle with sides 25, 25 and 40 units, then ...

(1) $A = B$ (2) $A < B$

(3) $A = 3B$ (4) $A = 2B$

Answer (1)

Sol.



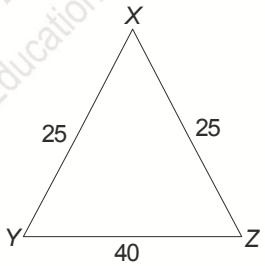
From ΔPQR

$A = \frac{b}{4}\sqrt{4a^2 - b^2}$

$= \frac{30}{4}\sqrt{2500 - 900}$

$= \frac{30}{4} \times 40$

$= 300$ sq. units



From ΔXYZ

$B = \frac{b}{4}\sqrt{4a^2 - b^2}$

$= \frac{40}{4}\sqrt{2500 - 1600}$

$= \frac{40}{4} \times 30$

$= 300$ sq. units

$\therefore A = B$

50. If $P(x)$ is a quadratic polynomial with $P(0) = 6$, $P(1) = 1$ and $P(2) = 0$, then the value of P(3) is ...

(1) 1 (2) 2

(3) 3 (4) 4

Answer (3)

Sol. Let $p(x) = ax^2 + bx + c$

$p(0) = 6$

$\Rightarrow c = 6$

$p(1) = 1$

$\Rightarrow a + b + 6 = 1$

$\Rightarrow a + b = -5 \quad \ldots(1)$

$p(2) = 0$

$\Rightarrow 4a + 2b + 6 = 0$

$2a + b = -3 \quad \ldots(2)$

From (1) & (2)

$a = 2 \quad b = -7$

$\therefore$ Quadratic polynomial, $p(x) = 2x^2 - 7x + 6$

Now, $p(3) = 2(9) - 7(3) + 6$

$= 24 - 21$

$= 3$

51. If a polygon has 44 diagonals, then its number of sides is ...

(1) 10 (2) 11

(3) 8 (4) 9

Answer (2)

Sol. Let no . of sides of polygon be 'n'

$$\frac{n(n-3)}{2} = 44$$

$$n(n-3) = 88$$

$$n^2 - 3n - 88 = 0$$

$$n = \frac{-(-3) \pm \sqrt{9 + 352}}{2}$$

$$n = \frac{3 \pm \sqrt{361}}{2}$$

$$n = \frac{3 \pm 19}{2} \Rightarrow n = 11$$

52. If $x = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$, $y = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$, then the value of $x^2 + xy + y^2$ is...

(1) 49 (2) 78

(3) 98 (4) 99

Answer (4)

Sol. $x = \left(\sqrt{3} - \sqrt{2}\right)^2 = 5 - 2\sqrt{6}$

$y = \left(\sqrt{3} + \sqrt{2}\right)^2 = 5 + 2\sqrt{6}$

$x^2 + xy + y^2 = \left(5 - 2\sqrt{6}\right)^2 + \left(5 - 2\sqrt{6}\right)\left(5 + 2\sqrt{6}\right) + \left(5 + 2\sqrt{6}\right)^2$

= 49 + 1 + 49

= 99

53. If a sphere is exactly fitted in a cube, then the ratio of the volume of cube to volume of the sphere is ....

(1) $9 : \pi$

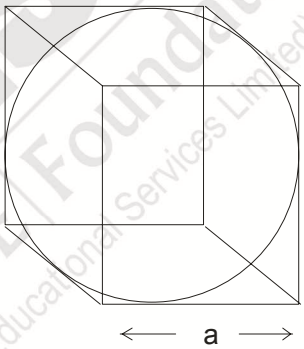
(2) $6 : \pi$

(3) $3 : \pi$

(4) $2 : \pi$

Answer (2)

Sol.



Let 'a' be the side of cube and 'r' be radius of sphere

$\Rightarrow a = 2r$

$$\frac{a}{r} = 2$$

$$\frac{\text{volume of cube}}{\text{volume of sphere}} = \frac{a^3}{\frac{4}{3}\pi r^3}$$

$$= \frac{3}{4\pi}\left(\frac{a}{r}\right)^3$$

$$= \frac{3}{4\pi}(8)$$

$$= \frac{6}{\pi}$$

54. $ABCD$ is a square of side 2 cm. If each vertex as centre and 1 cm as radius, four circles are drawn, then the radius of the circle which touches these four circles externally is ...

(1) $\sqrt{2}-1$

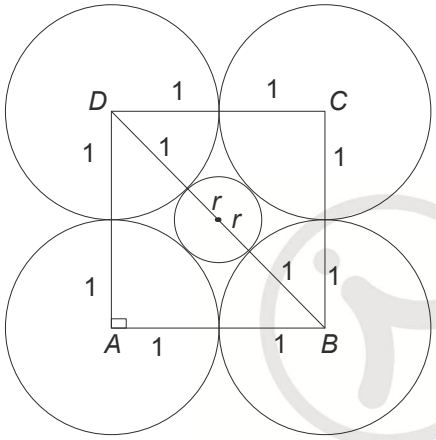
(2) $\sqrt{2}+1$

(3) $\sqrt{2}$

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

Answer (1)

Sol.



Let 'r' be the radius of circle which touches all four circles externally

Diagonal of square , $BD = 2\sqrt{2}$

$2\sqrt{2} = 2 + 2r$

$\Rightarrow \sqrt{2} = 1 + r$

$\Rightarrow r = \sqrt{2} - 1$

55. If $A = \log_2 \log_2 \log_4 256 + 2\log_{\sqrt{2}} 2$, then the value of A is...

(1) 2 (2) 3

(3) 7 (4) 5

Answer (4)

Sol. $A = \log_2 \log_2 \log_4 256 + 2\log_{\sqrt{2}} 2$

$A = \log_2 \log_2 \log_4 4^4 + 2\log_{\sqrt{2}} 2$

$A = \log_2 \log_2 4 + 2\log_{\frac{1}{2^{\frac{1}{2}}}} 2$

$A = \log_2 \log_2 2^2 + \frac{2}{\left(\frac{1}{2}\right)} \log_2 2$

$A = \log_2 2 + 4\log_2 2$

$A = 1 + 4$

$A = 5$

56. $15^3 - 8^3 - 7^3$ is completely divisible by....

(1) 32 (2) 49

(3) 56 (4) 25

Answer (3)

Sol. $15^3 - 8^3 - 7^3$

$\Rightarrow (15)^3 + (-8)^3 + (-7)^3$

If $a + b + c = 0$, then $a^3 + b^3 + c^3 = 3abc$

$\Rightarrow (15)^3 + (-8)^3 + (-7)^3 = 3(15)(-8)(-7)$

$= 45 \times 56$

$\Rightarrow 15^3 - 8^3 - 7^3$ is completely divisible by 56

57. If the length of each side of a triangle is increased by 20% , then the percentage of increase in its area is ...

(1) 60% (2) 120%

(3) 80% (4) 44%

Answer (4)

Sol. Let lengths of triangle be *a, b, c* respectively

$A = \sqrt{s(s-a)(s-b)(s-c)}$

Now, each length is increased by 20%

$\Rightarrow a' = \frac{6}{5}a,\ b' = \frac{6}{5}b,\ c' = \frac{6}{5}c$

$s' = \frac{6}{5}s$

$\therefore$ Increased area, $A' = \sqrt{s'(s'-a')(s'-b')(s'-c')}$

$A' = \sqrt{\left(\frac{6}{5}\right)^4 s(s-a)(s-b)(s-c)}$

$A' = \frac{36}{25}A$

$\therefore$ % Increase in Area = $\frac{A'-A}{A} \times 100$

$= \frac{\frac{36}{25}A - A}{A} \times 100$

$= \frac{11}{25} \times 100$

= 44%

58. $a_1, a_2, a_3, ... a_{24}$ are in Arithmetic progression . If $a_1 + a_5 + a_{10} + a_{15} + a_{20} + a_{24} = 225$, then the sum of its first 24 terms is ...

(1) 360 (2) 900

(3) 1800 (4) 2700

Answer (2)

Sol. $a_1 + a_5 + a_{10} + a_{15} + a_{20} + a_{24} = 225$

$(a) + (a + 4d) + (a + 9d) + (a + 14d) +$

$(a + 19d) + (a + 23d) = 225$

$\Rightarrow 6a + 69d = 225$

$\Rightarrow 2a + 23d = 75 \quad \ldots(1)$

Sum of first 24 terms = $\frac{24}{2}(a_1 + a_{24})$

$= 12(2a + 23d)$

$= 12(75)$

= 900

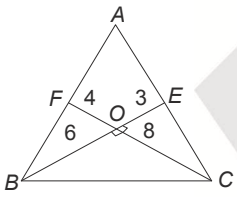
59. In ΔABC, medians BE and CF measure 9 cm and 12 cm respectively, If $BE \perp CF$, then area of triangle ABC is ....

(1) 24 cm^2 (2) 54 cm^2

(3) 72 cm^2 (4) 108 cm^2

Answer (3)

Sol.



Given $BE \perp CF$

$\Rightarrow \text{ar}(\Delta BEC) = \frac{1}{2} \times 9 \times 8 = 36 \text{ cm}^2$

Since 'BE' is the median,

$\text{ar}(\Delta ABC) = 2\text{ar}(\Delta BEC)$

$= 72 \text{ cm}^2$

60. If the number $(33333)^2 + 22222$ is expressed as a single decimal number, then the sum of its digits is …

(1) 10 (2) 15

(3) 20 (4) 25

Answer (1)

Sol. $(33333)^2 + 22222$

$=(3\times11111)^2 + 2 \times 11111$

$= 9 \times 11111^2 + 2 \times 11111$

$= 11111\,(9\times11111 + 2)$

$= 11111\,(99999 + 2)$

$= 11111 \times 100001$

$= 1111111111$

Sum of digits = 10

61. Find out the wrong statement about Montesquieu.

(1) He wrote the book "The spirits of the laws"

(2) He proposed a division of power within the government between the legislative, the executive and the judiciary.

(3) He introduced the division of powers type of Government in United States of America.

(4) None of the above

Answer (4)

Sol. None of the above

62. Period of Reign of Terror in France.

(1) 1793 to 1794 (2) 1789 to 1791

(3) 1799 to 1805 (4) 1813 to 1817

Answer (1)

Sol. 1793 – 1794

63. The European country which supported the Monroe Doctrine formulated by James Monroe, the President of America.

(1) Russia (2) Britain

(3) Poland (4) Turkey

Answer (2)

Sol. Britain

64. Find out the person who is not related to the unification of Italy.

(1) Victor Emmanuel II (2) Giuseppe Garibaldi

(3) Count of Cavour (4) Frederick William IV

Answer (4)

Sol. Frederick William IV

65. Who introduced opium into China in the early sixteenth century ?

(1) French (2) Portuguese

(3) Dutch (4) Italians

Answer (2)

Sol. Portuguese

66. Consider the following statements about Cricket.

(a) The first written "laws of Cricket" were drawn up in 1744.

(b) The world's first Cricket Club was formed in Manchester in 1760's.

(c) The parsis founded the first Indian Cricket Club and The Oriental Cricket Club in Bombay in 1848.

(d) India entered the world of Test Cricket in 1932.

Which of the following statements given above is/are correct?

(1) a only (2) a and d

(3) a, c, d (4) a, b, c, d

Answer (3)

Sol. a, c, d

67. Who was the viceroy of India during Civil Disobedience movement?

(1) Lord Irwin (2) Lord Chelmsford

(3) Lord Reading (4) Lord Curzon

Answer (1)

Sol. Lord Irwin

68. Who wrote several volumes on the London labour and compiled long lists of those who made a living from crime in the mid-nineteenth century ?

(1) Andrew Mearns (2) Charles Dickens

(3) C.G. Agarkar (4) Henry Mayhew

Answer (4)

Sol. Henry Mayhew

69. The protestant reformer who said "Printing is the ultimate gift of God and greatest one" is

(1) John Calvin

(2) William Farel

(3) Zwingli

(4) Martin Luther

Answer (4)

Sol. Martin Luther

70. Find out the wrongly matched.

(1) Gulamgiri - Jyotiba Phule.

(2) Aamar Jiban - Rassundari Devi.

(3) Chhote aur Bade ka sawal - Kashi Baba

(4) None of the above.

Answer (4)

Sol. None of the above

71. Find out the wrong statement about religious reformation movement.

(1) A German monk called Martin Luther started the movement.

(2) This movement is also called as Protestant Reformation movement.

(3) The Protestant Reformer has greater popular appeal in rural areas, while in towns the Catholic Church managed to retain its influence.

(4) None of the above

Answer ()

Sol. No option is correct.

72. Which of the following is a part of "April Theses", declared by Lenin?

(1) Banks be nationalised.

(2) Land be transferred to the peasants.

(3) The war to be brought to a close.

(4) All the above

Answer (4)

Sol. All the above

73. "Tebhaga movement" took place in this state.

(1) Bengal (2) Punjab

(3) Maharashtra (4) Kerala

Answer (1)

Sol. Bengal

74. Which among the following is not a demand of the Indian Navy Mutiny that took place in 1946?

(1) Equal pay for white and, Indian soldiers.

(2) Withdrawal of Indian troops from Indonesia.

(3) Separate nation for muslims

(4) None of the above

Answer (3)

Sol. Separate nation for muslims

75. Find out the wrongly matched about the formation of parties in India.

(1) Indian National Congress - 1885

(2) Muslim League – 1906

(3) Hindu Maha Sabha - 1910

(4) Communist Party of India - 1925

Answer (3)

Sol. Hindu Maha Sabha - 1910

76. Find out the wrong statement about. western cyclonic disturbances.

(1) These originate from the Mediterranean sea.

(2) They usually influence the weather of the North and North western regions of India.

(3) The rainfall received from these disturbances is called as Mahawat. It is a boon for the Rabi crop.

(4) None of the above

Answer (4)

Sol. None of the above

77. Match the following

	(A)	(B)
(a)	Tropical Deciduous forests	(i) Grows in Delta region
		(ii) Grows upto a height of 60 mts.
(b)	Tropical Evergreen forests	(iii) These are the most widespread forests of India.
(c)	Mangrove Forests	(iv) These are found in North-western part of India.
(d)	Thorn forests	

(a) (b) (c) (d) (a) (b) (c) (d)

(1) (ii) (i) (iv) (iii) (2) (iii) (i) (ii) (iv)

(3) (iv) (iii) (i) (ii) (4) (iii) (ii) (i) (iv)

Answer (4)

Sol. a – iii, b – ii, c – i, d - iv

78. Find out the highest and least Sex Ratio recorded decades.

(1) 1901,1991 (2) 1901, 2001

(3) 1921,1981 (4) 1911,2011

Answer (1)

Sol. 1901, 1991

79. Which of the following lake is the result of Tectonic activity?

(1) Chilka lake (2) Sambhar lake

(3) Pulicat lake (4) Wular lake

Answer (4)

Sol. Wular Lake

80. Which one of the following drainage patterns develop when streams flow in different directions from a central peak or dome like structure?

(1) Dendritic (2) Trellis

(3) Radial (4) Pinnate

Answer (3)

Sol. Radial

81. Find out the highest peak in India among the following.

(1) Makalu (2) Kamet

(3) Kanchenjunga (4) Nanda Devi

Answer (3)

Sol. Kanchenjunga

82. Which among the following reports introduced the concept of "Sustainable Development" and advocated it as a means for resource conservation?

(1) Leopold report, 1969.

(2) Brundtland report, 1987.

(3) Sunita Narayan report, 2012.

(4) Rome report, 1968.

Answer (2)

Sol. Brundtland report, 1987

83. Consider the following statements about soils.

(a) Red laterite soils in Tamilnadu, Andhra Pradesh and Kerala are more suitable for cashew nut crop.

(b) Arid soils are generally sandy in texture and saline in nature.

(c) Red soil develops on crystalline igneous rocks in areas of low rainfall

(d) Alluvial soils are found in interior part of Deccan plateau.

Which of the statement/s given above is/are correct ?

(1) a only (2) a and b

(3) a, b, c (4) a, b, c, d

Answer (3)

Sol. a, b, c

84. What causes rainfall on the Coromandel coast in the beginning of winters ?

(1) Western cyclonic disturbances.

(2) North-west monsoons.

(3) South-west monsoons.

(4) North-east monsoons

Answer (4)

Sol. North-east Monsoons

85. Salal project is built on this river

(1) Chenab (2) Chambal

(3) Damodar (4) Periyar

Answer (1)

Sol. Chenab

86. The Balaghat mines in Madhya Pradesh are famous for

(1) Bauxite (2) Copper

(3) Manganese (4) Gold

Answer (2)

Sol. Copper

87. National waterway No-2 joins these two cities.

(1) Allahabad and Haldia

(2) Kolkata and Cuttack

(3) Sadiya and Dhubri

(4) Kocchi and Kollam

Answer (3)

Sol. Sadiya and Dhubri

88. India's highest population growth rate is recorded during this decade.

(1) 1951-1961 (2) 1961-1971

(3) 1971-1981 (4) 1981-1991

Answer (4)

Sol. 1981 - 1991

89. Thal ghat and Bhor ghat passes are in these mountains

(1) Eastern ghats (2) Aravali mountains

(3) Satpura mountains (4) Western ghats

Answer (4)

Sol. Western ghats

90. Which one. of the following is the most wide spread and most productive category of soil in India?

(1) Forest soil (2) Laterite soil

(3) Alluvial soil (4) Arid soil

Answer (3)

Sol. Alluvial soil

91. Which of the following does not influence the making of Indian Constitution?

(1) Ideals of French revolution

(2) Practice of Parliamentary democracy in Britain.

(3) Bill of Rights in U.S.

(4) Armed struggle in China

Answer (4)

Sol. Armed struggle in China

92. Every person who wishes to contest in election has to make a legal declaration, giving full details of....

(1) Educational qualifications of the candidate

(2) Details of the assets and liabilities of the candidate and his or her family.

(3) Serious criminal cases pending against the candidate.

(4) All the above

Answer (4)

Sol. All of the above

93. Which of the following statements about the judiciary is false ?

(1) Every law passed by the Parliament needs approval of the Supreme court.

(2) Judiciary is independent of the executive.

(3) Any citizen can approach the court if his/her rights are violated.

(4) Judiciary can strike down a law if it goes against the spirit of the Constitution.

Answer (1)

Sol. Every law passed by the parliament needs approval of the Supreme court.

94. Find out the topic which is not in the state list.

(1) Trade

(2) Agriculture

(3) Police

(4) Communication

Answer (4)

Sol. Communication

95. Which of the following countries consists of two party system ?

(1) India

(2) China

(3) United States of America

(4) All the above.

Answer (3)

Sol. United States of America

96. A sweet seller purchased sugar. It is a __ type of capital.

(1) Fixed capital (2) Working capital

(3) Human capital (4) None of the above.

Answer (2)

Sol. Working capital

97. Which of the following factors contribute Globalisation?
    (1) Technology.
    (2) Economical liberalisation
    (3) International organisations
    (4) All the above

Answer (4)

Sol. All the above

98. Find out the wrong statement.
    (1) The consumption of calories has gone down between 1983 and 2004
    (2) Person availability of food grains has gone down between 1991 and 2001.
    (3) Agricultural diversification affect the production of food grains.
    (4) Availability of per capita food grains in India is more than in Europe.

Answer (4)

Sol. Availability of per capita food grains in India is more than in Europe

99. Chipko movement was started in this part of Himalayas
    (1) Nepal Himalayas
    (2) Garhwal Himalayas
    (3) Purvanchal Himalayas
    (4) Sikkim Himalayas

Answer (2)

Sol. Garhwal Himalayas

100. Antyodaya Anna Yojana scheme was started in the year.
    (1) 2000 (2) 2004
    (3) 2007 (4) 2011

Answer (1)

Sol. 2000

❑ ❑ ❑