DATE : 04/11/2018

GUJARAT

Aakash
Medical | IIT-JEE | Foundations
(Divisions of Aakash Educational Services Limited)

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Answers & Solutions

for

NTSE (Stage-I) 2018-19

INSTRUCTIONS TO CANDIDATES

1. Use blue/black ball point pen only. There is no negative marking.
2. All the questions are compulsory. This test booklet contains 200 questions (Paper-I : 100 & Paper-II : 100) of one mark each.
3. Paper-I : MAT : 1 - 100 questions

   Paper-II : SAT : 1 - 100 questions
4. Answer each question by darkening the one correct alternative among the four choices on the OMR Sheet with blue/black ball point pen.
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 answers 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)

1. 2, 3, 5, 9, 17, ?

(A) 34 (B) 31

(C) 32 (D) 33

Answer (D)

Sol.

	+1	+2	+4	+8	+16	
2	3	5	9	17	33	

2. 2, 7, 12, 17, ? , 27

(A) 18 (B) 22

(C) 19 (D) 23

Answer (B)

Sol.

2	7	12	17	22	27
+5	+5	+5	+5	+5	

3. 11, 121, 1331, ?

(A) 14641 (B) 14411

(C) 14141 (D) 14441

Answer (A)

Sol. 11, 121, 1331, 14641

$(11), (11)^2, (11)^3, (11)^4$

4. 656, 432, 320, 264, 236, ?

(A) 229 (B) 232

(C) 222 (D) 223

Answer (C)

Sol.

656	432	320	264	236	222
–224	–112	–56	–28	–14	

5. 3, 19, 97, 391, ? , 2359

(A) 1177 (B) 1084

(C) 1711 (D) 1958

Answer (A)

Sol. 3,19,97,391,_____,2359

3 x 6 + 1 = 19

19 x 5 + 2 = 97

97 x 4 + 3 = 391

391 x 3 + 5 = 1177

1177 x 2 + 5= 2359

6. 2, 7, 24, 77, ?

(A) 1335 (B) 249

(C) 283 (D) 238

Answer (D)

Sol. 2 x 3 + 1 = 7

7 x 3 + 3 = 24

24 x 3 + 5 = 77

77 x 3 + 7 = 238

7. 11, 5, 13, 10, 15, 15, 17, ? , ?

(A) 5, 11 (B) 20, 19

(C) 19, 21 (D) 19, 20

Answer (B)

Sol.

11,	5,	13,	10,	15,	15,	17,	20,	19
	+2		+2		+2		+2	

(+5 over 11, 5, 13; +5 over 10, 15, 15; +5 over 17, 20, 19)

8. 1331, 2197, 4913, 6859, ? , 24389

(A) 13824

(B) 9261

(C) 12167

(D) 15625

Answer (C)

Sol. 1331, 2197, 4913, 6859,_____,24389

$(11)^3, (13)^3, (17)^3, (19)^3, (23)^3, (29)^3$

9. 97, 96, 99, 88, 101, ?

(A) 90, 103 (B) 88, 99

(C) 121, 108 (D) 114, 103

Answer (A)

Sol.

97,	86,	99,	88,	101,	? ,	?
	+2		+2			

(+5 over 97, 86, 99; +5 over 88, 101, ?; +5 over 99, 88, 101)

10. 77, 49, 36, 18 ?

(A) 10 (B) 12

(C) 8 (D) 16

Answer (C)

Sol. 77, 49, 36, 18, ?

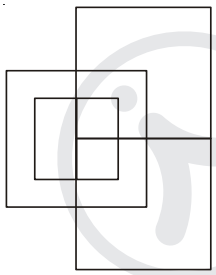
7 x 7 = 49

4 x 9 = 36

6 x 3 = 18

8 x 1 = 8

11. How many line segments are there in the given figure?

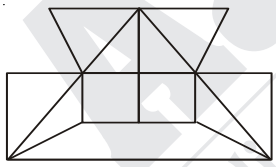


(A) 12 (B) 13

(C) 14 (D) 15

Answer (D)

12. How many line segments are there in the given figure?

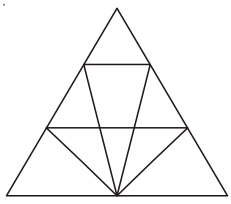


(A) 19 (B) 18

(C) 17 (D) 16

Answer (*)

13. How many triangles are there in the given figure ?

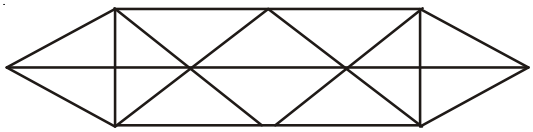


(A) 26 (B) 22

(C) 18 (D) 12

Answer (C)

14. How many triangles are there in the given figure ?

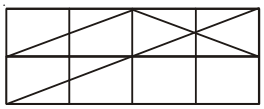


(A) 28 (B) 24

(C) 14 (D) 10

Answer (A)

15. How many triangles are there in the given figure ?

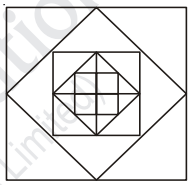


(A) 29 (B) 23

(C) 19 (D) none of these

Answer (B)

16. How many squares are there in the given figure ?

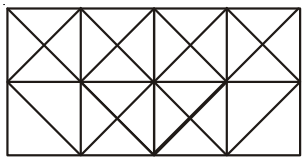


(A) 16 (B) 17

(C) 12 (D) 13

Answer (B)

17. How many squares are there in the given figure ?

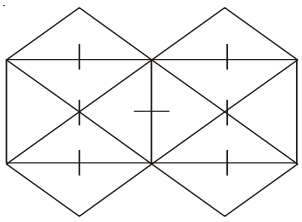


(A) 11 (B) 21

(C) 24 (D) 26

Answer (C)

Answer question no. 18 to 20 on the basis of given figure.



18. How many line segments are there in the given figure?

(A) 33 (B) 13

(C) 36 (D) 21

Answer (B)

19. How many traingle are there in the given figure?

(A) 12 (B) 16

(C) 22 (D) 24

Answer (C)

20. How many squares are there in the given figure ?

(A) 5 (B) 6

(C) 8 (D) 8

Answer (C)

21. B, F, J, N, R, V, Z, D, H, L, ?

(A) M (B) O

(C) P (D) T

Answer (C)

Sol. B, F, J, N, R, V, Z, D, H, L, ?
+4 +4 +4 +4 +4 +4 +4 +4 +4 +4

22. ABC, EFG, JKL, PQ ?

(A) R (B) S

(C) T (D) U

Answer (A)

Sol. ABC, EFG, JKL, PQR
+4 +5 +6
+4 +5 +6
+4 +5 +6

23. DD, jjj, PP, vvv, B ?

(A) BB (B) B

(C) C (D) cc

Answer (B)

Sol. DD, jjj, PP, VVV, B

D J P V B
+6 +6 +6 +6

24. AHL, ?, GFJ, DEI

(A) BGK (B) BKG

(C) GKB (D) GBK

Answer (A)

Sol. AHL, BGK, CFJ, DEI
+1 +1 +1
–1 –1 –1
–1 –1 –1

25. R, A, M, E, S, H, H, S, E, M, A, ?

(A) Z (B) Y

(C) R (D) W

Answer (C)

Sol. R, A, M, E, S, H H, S, E, M, A, R

26. A, C, F, J, O, ?, B

(A) I (B) H

(C) U (D) D

Answer (C)

Sol. A, C, F, J, O, U, B
+2 +3 +4 +5 +6 +7

27. $\frac{A}{4}, \frac{D}{9}, \frac{H}{15}, \frac{M}{22}$, ?

(A) $\frac{R}{30}$ (B) $\frac{Q}{31}$

(C) $\frac{Q}{30}$ (D) $\frac{S}{30}$

Answer (D)

Sol. $\frac{A}{4}, \frac{D}{9}, \frac{H}{15}, \frac{M}{22}, \frac{S}{30}$,
+3 +4 +5 +6
+5 +6 +7 +8

28. LU___TUPLUBTU____LUBT___P____UBTUP

(A) BPUL (B) BUPL

(C) LBPU (D) PBUL

Answer (A)

Sol. LUBTUP/LUBTUP/LUBIUP/LUBTUP

29. KM5, IP8, GS11, EV14, ?

(A) BY17 (B) BX17

(C) CY17 (D) CY18

Answer (C)

Sol. KM5, IP8, GS11, EV14, CY17
–2 –2 –2
+2 +2 +2
+3 +3 +3 +3

30. ABC, 6, EFG, 210, IJK, ?

(A) 1000 (B) 190

(C) 999 (D) 990

Answer (D)

Sol. ABC, 6, EFG, 210, IJK, ?

ABC = 1 × 2 × 3 = 6

EFG = 5 × 6 × 7 = 210

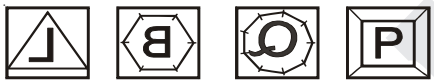
IJK = 9 × 10 × 11 = 990

Instruction : Four figures are given in question number 31 to 40. One of the figure differes from the rest. Find the figure which is differ from other.s

31. 
(A) (B) (C) (D)

Answer (D)

Sol. Vowell

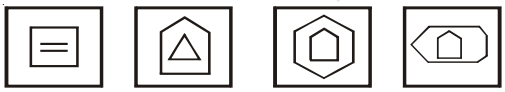
32. 
(A) (B) (C) (D)

Answer (D)

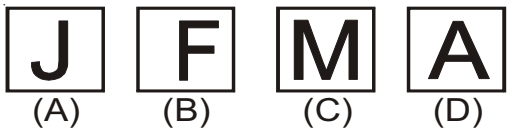
Sol. All letters are mirror image except P.

33. 
(A) (B) (C) (D)

Answer (D)

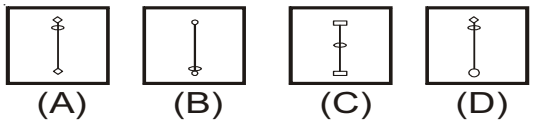
34. 
(A) (B) (C) (D)

Answer (C)

35. 
(A) (B) (C) (D)

Answer (D)

Sol. A is vowell

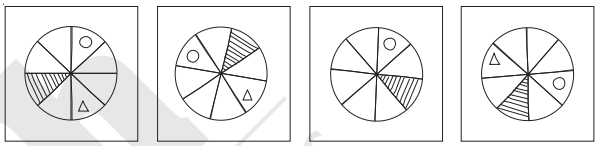
36. 
(A) (B) (C) (D)

Answer (D)

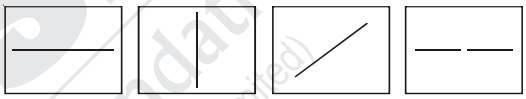
Sol. All three design on line are differents.

37. 
(A) (B) (C) (D)

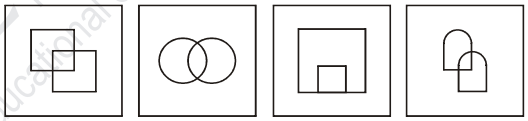
Answer (C)

38. 
(A) (B) (C) (D)

Answer (C)

39. 
(A) (B) (C) (D)

Answer (D)

40. 
(A) (B) (C) (D)

Answer (C)

41. If CAT is written ATC in Sign language DEAR is written EARD in sign language. Then, How sign will be written in sign language.

(A) INGS (2) NGSI

(3) SNGI (4) SGIN

Answer (*)

42. If, no more food' is written 'ta ka da' in sign langauage and 'more then that' is written 'sa pa ka' then what will be written for 'that' in the sing.

(A) sa (B) ka

(C) sa and pa (D) incomplete information

Answer (D)

Sol. No more food ⟶ ta ka da

More then that ⟶ sa pa ka

43. If LAP is written KMZBOQ in sign language then what will be written for NOTE ?

(A) MONPSUFD

(B) MONPUSDF

(C) MNOPSUDE

(D) MONPSUDF

Answer (D)

Sol. LAP $\rightarrow$ KMZBOQ

K–L–M, Z–A–B, O–P–Q

N O T E
MONPSUDE

44. If E= 5 and EMPIRE = 66 then what will be written for REPAIR ?

(A) 66 (B) 67

(C) 12 (D) 13

Answer (B)

Sol. E = 5, EMPIRE = 5 + 13 + 16 + 9 + 18 + 5 = 66

REPAIR= 18 + 5 + 16 +1 9 + 18 = 67

45. If SSC is written 19193 in sign language then what will be written for BBC ?

(A) 113 (B) 221

(C) 223 (D) 213

Answer (C)

Sol. S S C = 19 19 3 (–2)
B B C = 2 2 3

46. If CHARACTER is written 241612376 and CHILDREN is written 24859670 in sign language, then what will be written for HIRALAL ?

(A) 4861551 (B) 4861515

(C) 4865151 (D) 4681515

Answer (B)

Sol. C H A R A C T E R
2 4 1 6 1 2 3 7 6

C H I L D R E N
2 4 8 5 9 6 7 0

$\rightarrow$ H I R A L A L
4 8 6 1 5 1 5

47. If APPLE is written ETTPI in sign language then what will be written for DELHI ?

(A) HIPLM (B) ZAHDE

(C) HPILM (D) CQMND

Answer (A)

Sol. A P P L E $\rightarrow$ E T T P I
+4 +4 +4 +4 +4

D E L H I $\rightarrow$ H I P L M
+4 +4 +4 +4 +4

48. If DOCUMENTS written VDPENRSMD then what will be written for ADVERTISE ?

(A) FWEBDSRHS (B) FWEBSDRHS

(C) FWBESRDHS (D) FWEBSFMLD

Answer (*)

Sol.

49. If A = 1 and AND = 19 then what is for BAT ?

(A) 22 (B) 23

(C) 21 (D) 20

Answer (B)

Sol.

AND = 1 + 14 + 4 = 19

BAT = 2 + 1 20 = 23

50. If MEAN is written $57*, DOME is written 93$5 then what will be written for MOAN ?

(A) 3$7* (B) $73*

(C) $37* (D) $*37

Answer (C)

Sol. MEAN - DOME

$57★ 93$5

MOAN = $37★

Instruction : Four option are given in question no. 51 to 60. One of the option is diffes from the rest. Find out the different option.

51.

(A) Iron (B) Silver

(C) Gold (D) Brass

Answer (D)

Sol. Brass is alloy

52. (A) Cotton : tea (B) Milk : Card
(C) grapes : wine (D) BAMBOO : PAPER

Answer ()

53. (A) 6023 (B) 7202
(C) 4025 (D) 5061

Answer (D)

Sol. 6023 = 6 + 0 + 2 + 3 = 11

7202 = 7 + 2 + 0 + 2 = 11

4025 = 4 + 0 + 2 + 5 = 11

5061 = 5 + 0 + 6 + 1 = 12

54. (A) Writer (B) Publisher
(C) Poet (D) Novelist

Answer (B)

Sol. Publisher

55. (A) Violin (B) Sitar
(C) Flute (D) Veena

Answer (C)

Sol. Fluete. (All have wire)

56. (A) Conclusion (B) Research
(C) Analysis (D) Investigation

Answer (A)

Sol. Conclusion

57. (A) Pathology (B) Biology
(C) Cardiology (D) Radiology

Answer (B)

Sol. Biology

58. (A) Sports:Coach (B) Drama:Director
(C)Advice:Adviser (D) Student:Teacher

Answer (D)

59. (A) Plastic (B) Nylon
(C) Silk (D) Polythene

Answer (C)

Sol. (Natural fibres)

60. (A) Bangkok (B) Jindal
(C) Rangoon (D) Kabul

Answer (B)

Sol. Rest all places

Instruction : Find out the correct mirror immage in question no. 61 to 65

61. 

(A)  (B) 

(C)  (D) 

Answer (D)

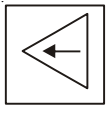
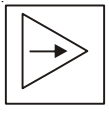
62. 

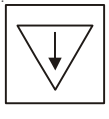
(A)  (B) 

(C)  (D) 

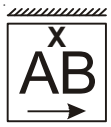
Answer (C)

63. 

(A)  (B) 

(C)  (D) 

Answer (D)

64. 

(A) 

(B) 

(C) 

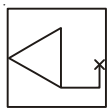
(D) 

Answer (B)

65. 

(A) 

(B) 

(C) 

(D) 

Answer (B)

Instruction : Find out the correct co-relation in question no. 66 to 70.

66. India : Ashok Chakra, France : ?

(A) Eagle (B) Lily

(C) Rose (D) Lotus

Answer (A)

67. London : Thames, Delhi : ?

(A) Yamuna (B) Godavari

(C) Krishna (D) Kaveri

Answer (A)

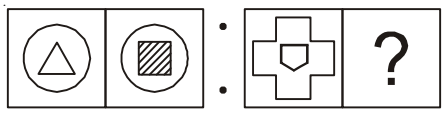
Sol. River

68. India : CBI, Pakistan : ?

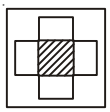
(A) NDT (B) ISI

(C) CBSE (D) None

Answer (D)

69. 

(A) 

(B) 

(C) 

(D) 

Answer (C)

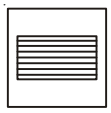
Sol. Shapes

triangle - square

pentagen - hexagen

70. 

(A) 

(B) 

(C) 

(D) 

Answer (C)

Sol. Sides 3 to 5

Sides 4 to 6

Instruction : According to the question, choose the correct option logically in question no. 71 to 75.

71. (1) Index, (2) Contents, (3) Title, (4) Chapters, (5) Introduction

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

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

Answer (B)

72. (1) Embryo, (2) Child, (3) Baby, (4) Middle Aged, (5) Young

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

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

Answer (C)

Sol. Embryo – Baby – Child – Young – Midle Aged

73. (1) Poverty, (2) Population, (3) Death, (4) Unemployment, (5) Disease

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

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

Answer (A)

Sol. Population – Unemployment – Poverty – Discease – Death.

74. (1) Accident, (2) Judge, (3) Doctor, (4) Lawer, (5) Police

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

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

Answer (B)

Sol. Accident – Doctor – Police – Lawyer – Judge

75. (1) Golden Jubilee, (2) Silver Jubilee, (3) Anniversary, (4) Diamond Jubilee, (5) Centenary Celebrations

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

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

Answer (D)

Sol. Anniversary – Silver jublee – Golden Jublee – Diamond jubllee – Centerory Celbetration

Instruction : Follow the instruction and choose the correct option in question no. 76 to 80.

76. If × means +, ÷ means ×, + means – and – means ÷ then 24 + 36 – 12 × 8 ÷ 4 = ?

(A) 36 (B) 53

(C) 5 (D) –20

Answer (B)

Sol. 24 – 36 ÷ 12 + 8 x 4

= 24 – 3 + 32

= 21 + 32

= 53

77. If ÷ means +, – means ×, × means ÷ and + means – then 15 – 8 × 6 ÷ 12 + 4 = ?

(A) 20 (B) $8\frac{4}{7}$

(C) $2\frac{2}{7}$ (D) 28

Answer (D)

Sol. 15 x 8 ÷ 6 + 12 – 4

$15 \times \frac{8}{6} + 12 - 4$

= 20 + 12 – 4

= 20 + 8

= 28

78. If ÷ means +, – means ×, + means – and × means ÷ then 14 – 4 × 7 ÷ 12 + 8 = ?

(A) 12 (B) 20

(C) $5\frac{1}{11}$ (D) 8

Answer (A)

Sol. 14 x 4 ÷ 7 + 12 – 8

$14 \times \frac{4}{7} + 12 - 8$

= 8 + 12 – 8 = 12

79. If ÷ means ×, + means ÷, – means + and × means – then 20 – 16 + 4 × 3 ÷ 2 = ?

(A) 16 (B) 30

(C) 18 (D) 24

Answer (C)

Sol. 20 + 16 ÷ 4 – 3 x 2

= 20 + – 6

= 24 – 6

= 18

80. If A means –, B means ÷, C means +, D means × then 15B3C24A12D2 = ?

(A) 3 (B) 5

(C) 7 (D) 9

Answer (B)

Sol. 15 ÷ 3 + 24 – 12 x 2

5 + 24 – 24

= 5

Instruction : Follow the instruction and choose the correct answer from the option (que. no. 81 to 100)

Answer ()

81. If third Friday is on 16th of a month then what will be the date of fourth Tuesday of same month ?

(A) 20 (B) 22

(C) 27 (D) 29

Answer (C)

82. Today is Monday. Which will be the day after 65 days ?

(A) Wednesday (B) Friday

(C) Saturday (D) Sunday

Answer (A)

83. 1st January, 2000 was Saturday then which day will be there on 1st January, 2001.

(A) Monday (B) Tuesday

(C) Friday (D) Saturday

Answer (A)

84. Which will be the Leap Year ?

(A) 2800 (B) 1800

(C) 2600 (D) 300

Answer (A)

Sol. Centurian year is divisible by 400 is Leap year

85. R is sister of M and M is brother of H. D is mother of K, and K is brother of M then what is the relation between R and D ?

(A) Sister (B) Daughter

(C) Mother (D) Incomplete information

Answer (B)

Sol. R is daughter of D

86. K is brother of T, M is mother of K, W is brother of M then what is the relation between W and T ?

(A) Maternal Uncle (B) Grand Father

(C) Paternal Uncle (D) None of these

Answer (A)

Sol.

M — W
|
K — T

Maternal Uncle

87. Mohan pointing his finger to a photo, and said that "The only child of his mother is the only son of my father". Then whose photo is mohan pointing ?

(A) Brother (B) Himself

(C) Paternal Cousin (D) Maternal Cousin

Answer (B)

88. What will be my relations with the daugher of my paternal aunt's father's son?

(A) Paternal aunt

(B) Sister

(C) Niece(Brother Daugher)

(D) Niece (Sisters Daugher)

Answer (B)

89. X and Y are brothers. R is father of Y, S is brother of T and maternal uncle of X. Then what is the relation of T and R ?

(A) Wife (B) Mother

(C) Sister (D) Brother

Answer (A)

Sol.

R - (T $\xrightarrow{\text{brother}}$ S)
Father |
x $\xrightarrow{\text{Brother}}$ y

90. A clock is kept in a way that at 12 O'clock its minute hand is in north east direction. Then what will be the direction of hour hand at 1:30?

(A) North (B) South

(C) East (D) West

Answer (C)

Sol. East

91. If south east is north and north east is west and goes ahead in same direction then what will be the direction of west ?

(A) south west (B) north east

(C) south east (D) north west

Answer (C)

Sol.

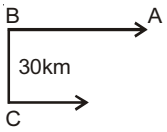
92. A train runs 120 km in the west, then it runs 30 km in the south and 80 km in the east again before reaching the station. In which direction the station will be from the starting point of the train?

(A) south east (B) north west

(C) south (D) south west

Answer (D)

Sol.



South West -

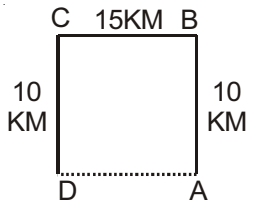
93. Ram stands out towards the north. He walks directly (straight) 10km. Then he turns left and walks 15 km and then turns left and walks 10km. Then how far is he from the starting point?

(A) 10 km (B) 5 km

(C) 12 km (D) 15 km

Answer (D)

Sol. 15km



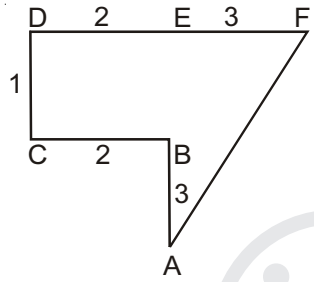
94. A men walks 3 km north from his house. Then turns left and walks 2km. Then turns right and walks 1 km. At last he turns right and walks 5km. How far is he from his house ?

(A) 3 km (B) 6 km

(C) 4 km (D) 5 km

Answer (D)

Sol.



$(AF)^2 = (AE)^2 + (EF)^2$

$= (AF)^2 = (4)^2 + (3)^2$

$= 16 + 9$

$= 25$

$(AF)^2 = 5$

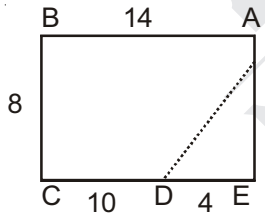
95. Nitin walks 14 km west then he goes 3 km south. Afterwards he walks 10km towards east. How far is he from his starting point?

(A) 5 km (B) 12 km

(C) 15 km (D) 10 km

Answer (A)

Sol.



$(AD)^2 = (AE)^2 + (OE)^2$

$(AD)^2 = (3)^2 + (4)^2$

$(AD)^2 = 25$

$AD = 5$

96. Proportion ratio of the age of A & B is 3 : 2 today. After 5 years it will be 8 : 7. What is the sum of the age of both?

(A) 8 year (B) 5 year

(C) 10 year (D) None of these

Answer (B)

Sol. A : B

Presente ages 3x and 2x

After 5 years 3x + 5 and 2x + 5

$$\frac{3x+5}{2x+5} = \frac{8}{7}$$

$7(3x + 5) = 8(2x+5)$

$21x + 35 = 16x + 40$

$x = 5$

97. Sum of Luky & Suman age is 35 years today. Proportion ratio will be 4 : 5 after 5 years. What is the age difference between them now ?

(A) 3 year (B) 6 year

(C) 5 year (D) 4 year

Answer (C)

Sol. Lucky : Suman

Presentase x : y

5yr later x + 5 : y + 5

$x + y = 35$ ..... (1)

$$\frac{x+5}{y+5} = \frac{4}{5}$$

$= 5x + 25 = 4y + 20$

$= 5x – 4y = –5$ ..... (2)

by (1) and (2)

$x + y = 35$

$5x – 4y = –5$

$4x + 4y = 140$

$5x – 4y = –5$

$9x = 135$

$$x = \frac{135}{9} = 15$$

$\therefore y = 35 – x$

$= 35 – 15$

$= 20$

$\therefore$ difference between ages = 20 – 15

= 5y

98. Father's age is 8 years plus of thrice son's age. Mother's age is 3 years more than father's age. If son's age is 7 years then what is the age of mother?

(A) 26 year

(B) 29 year

(C) 32 year

(D) 35 year

Answer (C)

Sol. Son Father Mother

x 3x + 8 3x + 11

x = 7

Mohter's are = 3(7) + 11

= 21 + 11

= 32 yr

99. There are 3 red 5 yellow and 4 green balls in a box, if 3 balls are randomly taken from the box. Then what is the probability of taken balls ?

(A) 120 (B) 220

(C) 320 (D) 420

Sol. (*)

100. If 16 persons shake hands in a party then what will be the total number of shaking hands be combined?

(A) 120 (B) 256

(C) 110 (D) 100

Answer (A)

Sol. Total Number = $^{16}C_2$

$= \frac{16x11x14!}{(16-2)!2!}$

$= \frac{10x15x14!}{14!x2x1}$

= 120

PAPER-II : SCHOLASTIC APTITUDE TEST (SAT)

1. $(A \cap B')' =$ __

(A) A U B' (B) A' U B

(C) A U B (D) $(A \cap B)$

Answer (B)

Sol. $(A \cap B')' = A' \cup (B')'$

$= A' \cup B$

2. The supplementary angle of the complementary angle of angle having measure 23 has measure ___

(A) 67 (B) 90

(C) 113 (D) 23

Answer (C)

Sol. 180 – (90–23)

= 180 – (67)

= 113

3. The width of the class 55.5 - 60.5 is ___

(A) 10 (B) 5

(C) 2.5 (D) 7

Answer (B)

Sol. 80.5 – 55.5 = 5

4. $\overline{AD}$ and $\overline{BE}$ are the altitudes of ΔABC. If AD = 6 cm, BC = 16 cm, BE = 8 cm, then CA= __cm.

(A) 12 (B) 18

(C) 24 (D) 10

Answer (A)

Sol. $\frac{1}{2} xBCxAD = \frac{1}{2} xCAxBE$

16 x 6 = CA x 8

$CA = 1\frac{16x6}{8} = 12CM$

5. If one factor of the polynomial $x^3 + 4x^2 - 3x - 18$ is x + 3, then the other factor is

(A) $x^2 + x$ (B) $x^2 + x + 6$

(C) $x^2 + x - 6$ (D) $x^2 - x + 6$

Answer (C)

Sol.
$$x+3 \overline{)x^3+4x^2-3x-18} \quad (x^2+x-6)$$
$$\underline{\mp x^3 \pm 3x^2}$$
$$x^2 - 3x$$
$$\underline{\mp x^2 \pm 3x}$$
$$-6x - 18$$
$$\underline{\mp 6x \mp 18}$$
$$0$$

6. If G.C.D of two numbers is 8 and their product is 384, then their L.C.M. is___

(A) 24 (B) 16

(C) 32 (D) 48

Answer (D)

Sol. GCD of two namber x L.C.M. of two number

= Product of number

e x LCM = 384

$$LCM = \frac{384}{8} = 48$$

7. The sum of the zeros of $3x^2 + 5x - 2$ is____

(A) $\frac{3}{5}$ (B) $-\frac{3}{5}$

(C) $\frac{5}{3}$ (D) $-\frac{5}{3}$

Answer (D)

Sol. $3x^2 + 5x - 2$

$a = 3, b = 5, c = -2$

$$\text{sum of zeroes} = -\frac{b}{c} = -\frac{5}{3}$$

8. If in a two digit number, the digit at unit place is y and the digit at tens place is 7, then the number is__

(A) 70y + 7 (B) y + 7

(C) y + 70 (D) 10y + 7

Answer (C)

Sol. 10 x 7 + y

= 70 + y

= y + 70

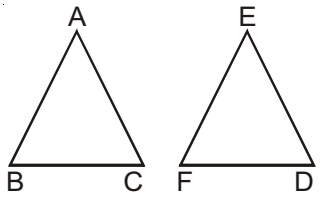
9. If the correspondance $ABC \leftrightarrow EFD$ is a similarity in ΔABC and ΔDEF, then___of the following is not ture.

(A) $\frac{BC}{DF} = \frac{AC}{DE}$ (B) $\frac{AB}{DE} = \frac{BC}{DF}$

(C) $\frac{AB}{EF} = \frac{AC}{DE}$ (D) $\frac{BC}{DF} = \frac{AB}{EF}$

Answer (B)

Sol. $\frac{AB}{EF} = \frac{BC}{FD} = \frac{AC}{DE}$



10. In ABC, $m\angle B=90$, AB = BC Then AB : AC =___

(A) 1 : 3 (B) 1 : 2

(C) $1:\sqrt{2}$ (D) $\sqrt{2}:1$

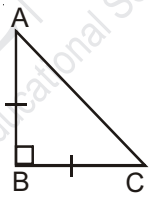
Answer (C)

Sol. $(AB)^2+(BC)^2=(AC)^2$

$= 2(AB)^2 = (AC)^2$ [AB = BC])

$$\frac{(AB)^2}{(AC)^2} = \frac{1}{2} = \frac{AB}{AC} = \frac{1}{\sqrt{2}}$$

$= AB : AC : 1 : \sqrt{2}$



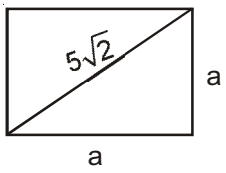
11. The diagonal of a square is $5\sqrt{2}$. The length of the side of the square is___

(A) 10 (B) 5

(C) $3\sqrt{2}$ (D) $2\sqrt{2}$

Answer (B)

Sol.



$a^2 + a^2 = (5\sqrt{2})^2$

$= 2a^2 = 25 \times 2$

$$= a^2 = \frac{25x2}{2}$$

$= a = 5$

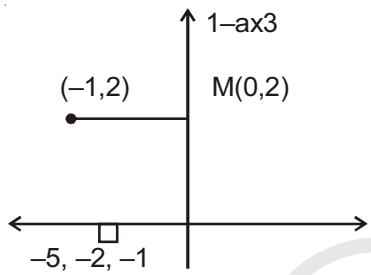
12. The foot of the perpendicular from p(-3.2) to the Y-axis is M.co-ordinates of M are___

(A) (3,0) (B) (0,2)

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

Answer (B)

Sol.



13. If $\tan 5\theta .\tan 4\theta = 1$, then θ is___

(A) 7 (B) 3

(C) 10 (D) 9

Answer (C)

Sol. $\tan 5\theta.\tan 4\theta = 1$

$$\tan 5\theta = \frac{1}{\tan 4\theta}$$

$\tan 5\theta = \cot 4\theta$

$\tan 5\theta = \tan(90-4\theta)$

$5\theta = 90-4\theta$

$9\theta = 9$

$\theta = 10$

14. For right angle ΔABC,

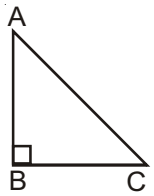
$\sin^2 A + \sin^2 B + \sin^2 C =$ ___

(A) 2 (B) 1

(C) 0 (D) -1

Answer (A)

Sol.



$\sin^2A + \sin^2B + \sin^2C$

$= \sin^2(90-C) + \sin^290 + \text{sinc}^2C$

$= \cos^2C + 1 + \sin^2C$

$= 1 + \sin^2C + \cos^2C$

$= 1 + 1 = 2$

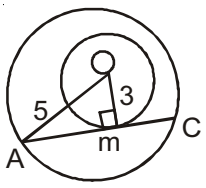
15. A chord of $\Theta(0,5)$ touches $\Theta(0,3)$. Therefore, the length of the chord =___

(A) 8 (B) 10

(C) 7 (D) 6

Answer (A)

Sol.



$(OA)^2 = (OM)^2 + (AM)^2$

$(5)2 = (3)2 + (AM)2$

$(AM)2 = 2T - 9$

$= 16$

$AM = 4$

$AC = 2\ (AM) = 2 \times 4 = 8$

16. A card is selected at random from well-shuffled pack of 52 cards. The probability that the selected card is not an ace is__

(A) $\frac{12}{13}$ (B) $\frac{4}{13}$

(C) $\frac{1}{13}$ (D) $\frac{13}{4}$

Answer (A)

Sol. $P(E) = \frac{48}{52} = \frac{12}{13}$

17. Two balanced dice are thrown once. The probability of getting sum of numbers is divisible by 5 is___

(A) $\frac{29}{36}$ (B) $\frac{5}{36}$

(C) $\frac{1}{6}$ (D) $\frac{7}{36}$

Answer (D)

Sol. Sum 5,= (4,1), (1,4), (2,3), (3,2),

Sum 10 = (6,4), (4,6), (5,5)

$$P(E) = \frac{7}{36}$$

18. If $\sqrt{3}$ and $-\sqrt{3}$ are the zeros of polynomial p(x), then__is not the factor of the p(x)

(A) $x+\sqrt{3}$ (B) $x-\sqrt{3}$

(C) x^2-3 (D) x^2+3

Answer (C)

Sol. $(x-\sqrt{3})\ (x+\sqrt{3})$

$(x^2 - 3)$

19. Equation $\frac{2}{3}x+\frac{3}{2}y=5$ can be expressed in the standard form as___

(A) $2x+3y-5=0$ (B) $4x+9y-5=0$

(C) $4x+9y+30=0$ (D) $4x+9y-30=0$

Answer (D)

Sol. $\frac{2}{3}x+\frac{3}{2}y=5$

$\frac{4x+9y}{6}=5$

$4x + 9y = 30$

$4x+9y-30 = 0$

20. $\frac{317}{3125}$ represents___

(A) A terminating decimal

(B) A non-recurring decimal

(C) A recurring decimal

(D) An Integer

Answer (A)

Sol. $\frac{317}{3125}=\frac{317}{(5)^5}$

A Terminating decimal

21. 100 meter =____nm.

(A) 10^{-11} (B) 10^{11}

(C) 10^{-9} (D) 10^{9}

Answer (B)

Sol. $1m = 10^9$ nm

$100m = 10^{11}$ nm

22. Which is not allotropes of carbon nanostructures ?

(A) Fullerene

(B) Graphene

(C) Bucky-ball of Bom atoms

(D) Nanobuds

Answer (C)

Sol.

23. What is speed of light in glass ?

(A) 2×10^8 ms^{-1} (B) 2.25×10^8 ms^{-1}

(C) $3 \times 10^8 ms^{-1}$ (D) 1.75×10^8 ms-1

Answer (A)

Sol. $\mu = \frac{C}{V}$

$\frac{3}{2}=\frac{3x10^8}{V}$

$V = 2 \times 10^8$ m/s

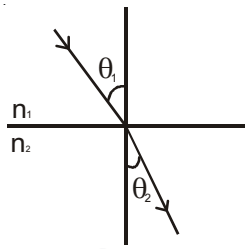
24. Which equation not represent snell's law ?

(A) $\frac{n_2}{n_1}=\frac{\sin\theta_1}{\sin\theta_2}$ (B) $\frac{n_1}{n_2}=\frac{\sin\theta_2}{\sin\theta_1}$

(C) $n_1\sin\theta_1 = n_2\sin\theta_2$ (D) $n_1\sin\theta_2 = n_2\sin\theta_1$

Answer (D)

Sol.



$n_1\sin\theta_1 = n_2\sin\theta_2$

25. National Science day celebrates on___

(A) March 28 (B) January 28

(C) April 28 (D) February 28

Answer (D)

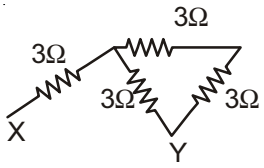
26. When a milky and cloudy layer is formed on the eye lens of old age person, they lose their vision partially or completely. This type of situation is called____

(A) Myopia (B) Cataract

(C) Hypermetropia (D) Presbyopia

Answer (B)

27. Determine the equivalent resistance between points x and y in the following circuit.

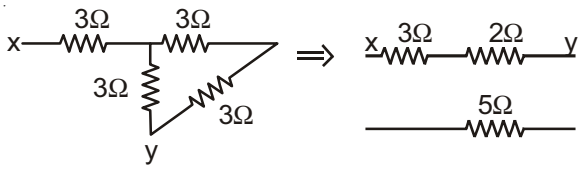


(A) 5Ω (B) 12Ω

(C) 9Ω (D) 6Ω

Answer (A)

Sol.



28. Which formula is not correct for R? (R=Resistance)

(A) $R = \frac{W}{I^2t}$ (B) $R = \frac{V^2}{P}$

(C) $R = I^2t$ (D) $R = \frac{P}{I^2}$

Answer (C)

29. The unit of electric potential difference is_____

(1) JC (2) J/C

(3) J (4) C/J

Answer (B)

Sol. $V = \frac{w}{q} = \frac{J}{C}$

30. Which is not correct?

(1) Acid + Based $\rightarrow$ Salt + Water

(2) Acid + Metal oxide $\rightarrow$ Salt + Water

(3) Non-Metal oxide + Water $\rightarrow$ Base

(4) Base + Metal $\rightarrow$ Salt + Hydrogen + Water

Answer (C)

Sol. Non-metal oxide + water $\rightarrow$ Base

$CO_2 + H_2O \rightarrow H2CO_3$

31. Which is weak acid?

(A) Oxalic acid (B) Hydrochloric acid

(C) Nitric acid (D) Salphuric acid

Answer (A)

Sol. Oxalic acid ($H_2C_2O_4$)

32. What is chemical formula of milk of magnesia?

(A) $MgNO_3$ (B) $MgSO_4$

(C) $Mg(OH)_3$ (D) $Mg(OH)_2$

Answer (D)

Sol. $Mg(OH)_2$

33. How many long wire can be drawn from a gram gold?

(A) 2 Centimeter (B) 2 Meter

(C) 2 Kilometer (D) 200 Meter

Answer (C)

Sol. 2 kilometer (Highly malleable)

34. Which alloy is used to preparation of statues?

(A) Bronze (B) Brass

(C) Steal (D) Duralumin

Answer (A)

Sol. Bronze

35. Which is not a step of metallurgy?

(A) Reduction (B) Roasting

(C) Corrosion (D) Concentration ore

Answer (C)

Sol. Corrosion

36. ---------- respire through lungs.

(A) Crabs (B) Lizard

(C) Sepia (D) prawns

Answer (B)

Sol. Reptiles (Land dwellers) respire through Lungs

37. Anaerobic respiration takes place only in ---------

(A) Mitochondria (B) Glands

(C) Lungs (D) Cytoplasm

Answer (D)

Sol. Cytoplasm is the site of glycolysis

38. The small intestine receives the secretion from-------

(A) Salivary glands (B) Stomach and liver

(C) Liver and salivary glands (D) Liver and Pancreas

Answer (D)

Sol. Fact

39. Where in do the Pulmonary veins open?

(A) Left auricle (B) Left ventricle

(C) Lungs (D) Right auricle

Answer (A)

Sol. Fact

40. In the villi of ileum the absorption of lipids takes place through.....

(A) Lymph ducts (B) Lymph capillaries

(C) Blood capillaries (D) Lymph vessels

Answer (B)

Sol. Lymph capillaries specialized for fat absorption are called lacteals

41. Which animals in the animal kingdom require the maximum amount of energy?

(A) Fishes Amphibians (B) Amphibians Reptiles

(C) Mammals Reptiles (D) Birds - Mammals

Answer (D)

Sol. Homeotherms require more energy for maintaning contant body temperature

42. It is found as four small glands.

(A) Parathyroid gland (B) Adrenal gland

(C) Pituitary gland (D) Thyroid gland

Answer (A)

43. Whose excessive secretion causes the body to look like gorilla?

(A) GTH (B) PRL

(C) GH (D) MSH

Answer (C)

Sol. Hypersecretion of Growth hormone

44. Which wave lengh of harmful UV - radiations is prevented by ozone layer in entering the earth atmosphere?

(A) 210 - 300 nm (B) 200 - 310 nm

(C) 120 - 210 nm (D) 400 - 700 nm

Answer (B)

Sol.

45. Which of the following groups have only non - biodegradable components?

1. Wood, Paper, Leather
2. Polythene, Detergent, PVC
3. Plastic, Detergent, Glass
4. Plastic, Glass, animal dug

(A) 1 and 4 (B) only 3

(C) 2 and 3 (D) 1 and 3

Answer (C)

Sol.

46. A car accelerates uniformly from 18 km/h to 36 km/h in 5 sec. Calculate the accelaration.

(A) 1 ms^{-1} (B) 3.6 ms^{-2}

(D) 2 ms^{-2} (C) 2.6 ms^{-2}

Answer (A)

Sol. $a = \frac{V-u}{t} = \frac{10-5}{5} = 1m/s^2$

47. What is the SI unit of momentum ?

(A) g ms^{-1} (B) g m^2s^{-1}

(C) kg ms^{-1} (D) kg ms^{-2}

Answer (C)

Sol. P = mV

$= kg\frac{m}{s}$

48. What is mass of the moon ?

(A) 6 x 10^{24}kg (B) 7.4 x 10^{22}kg

(C) 6 x 10^{22}kg (D) 7.4 x 10^{24}kg

Answer (B)

49. A boy of mass 50 kg runs up a staircase of 45 steps in 9 sec. If the height of each steps is 15 cm. Find his power. (Take g = 10 ms^{-2})

(A) 275 W (B) 350 W

(C) 325 W (D) 375 W

Answer (D)

Sol. $P = \frac{mgh}{t} = 50x10x\frac{45}{100}x\frac{15}{9}$

= 375W

50. When we go from solid to gaseous state, the speed of sound---------

(A) Increases (B) Increases or decreases

(C) Decreases (D) Constant

Answer (C)

51. What is formula of carbon tetrachloride?

(A) CCl_4 (B) CCl_3

(C) CCl_2 (D) CCl

Answer (A)

Sol. CCl_4

52. What is the maximum number of electrons that can be accommodated in the outermost orbit?

(A) 2 (B) 8

(C) 3 (D) 18

Answer (B)

53. The melting point of ice is ____

(A) 273.15 k (B) 173.15 k

(C) 373.5 k (D) 100 k

Answer (A)

Sol. O^oC = 273.15K

54. ____ is not an example of Aerosol.

(A) Fog (B) Clouds

(C) Mist (D) Shaving cream

Answer (D)

Sol. Shaving cream (Example of fog)

55. Who give the definition of an element?

(A) Rebert Boyle (B) John Dalton

(C) Lavoisier (D) Thomson

Answer (C)

Sol. Antoine Lavoisier

56. ___ is also known as the 'suicide bags' of a cell.

(A) Mitochondria (B) Lysosomes

(C) Plastids (D) Golgi Apparatus

Answer (B)

Sol. Presence of hydrolytic enzymes

57. ___ is not an example of simple Tissues.

(A) Parenchyma (B) Collenchyma

(C) Sclerenchyma (D) Phloem

Answer (D)

Sol. Phloem is a complex tissue

58. Which is example of the bryophyte?

(A) spirogyra (B) ulothrix

(C) ulva (D) marchantia

Answer (D)

Sol. Fact

59. ___ is not an example of Echinodermata.

(A) Octopus (B) Sea star

(C) Echinus (D) Antedon

Answer (A)

Sol. Octopus belongs to phylum Mollusca

60. Which is an example of chronic diseases?

(A) Common cold (B) Asthma

(C) Flu (D) Pneumonia

Answer (B)

Sol. Asthma is a chronic inflammatory disease of respiratory tract.

61. Who discovered the 'Cape of Good Hope'?

(A) Vasco-da-Gama (B) Bartholomew Diaz

(C) Columbus (D) Prince Henry

Answer (B)

62. Who become the first Governer General of India?

(A) Comwallis (B) Wellesley

(C) Warren Hastings (D) Sir John Shore

Answer (C)

63. There are how many commissions were formed in Paris "Peace Process"?

(A) 48 (B) 58

(C) 68 (D) 79

Answer (B)

64. Who was the Pioneer of armed revolution in Gujarat?

(A) Aurbiondo Ghosh

(B) Baarindrakumar Ghosh

(C) Bal Gangadhar Tilak

(D) Mahatma Gandhi

Answer (A)

65. One lakh mill workers of 75 cotton mill industries in Ahmedabad went on peaceful strike for how many days?

(A) 35 days (B) 95 days

(C) 105 days (D) 2010 days

Answer (C)

66. In which year union summit was held at Kuala Lumpur?

(A) 2001 (B) 2003

(C) 2004 (D) 2009

Answer (B)

Sol. Fact

67. In the year 1971, Bangladesh become an independent and sovereign country as earlier it was the part of which country?

(A) India (B) Afghanistan

(C) China (D) Pakistan

Answer (D)

Sol. Fact

68. Who was appointed as the chairman of state reorganisation commision by Jawaharlal Nehru in 1953?

(A) Mr. Hridaynath Kunzu

(B) Mr. K. M. Panikar

(C) Jastice Fazal Ali

(D) Dr. Sarvapalli Radhakrishnan

Answer (C)

69. Which word was inserted in the constitution by 42nd Ahmendment 1976?

(A) Social (B) Political

(C) Sovereign (D) Secular

Answer (D)

70. Who said this "To rule the regime there principles are the foundations"?

(A) Mahatma Gandhi

(B) Sardar Patel

(C) Dr. B. K. Ambedkar

(D) Dr. Rajendra Prasad

Answer (C)

71. If any member of the Loksabha remains absent for a continuous period of how many days without informing the speaker then his seat is declared vacant?

(A) 60 (B) 70

(C) 80 (D) 105

Answer (A)

72. the Judge who handles the criminal cases is called?

(A) District Judge (B) Muncif Magistrate

(C) Sesssion Judge (D) Supreme Court Judge

Answer (C)

73. In which sea Lakshadweep Islands are located?

(A) Bay of Bengal (B) Arabian Sea

(C) Res Sea (D) Mediterranean Sea

Answer (B)

74. In our routine life, about how many types of minerals are used directly or indirectly?

(A) 100 types (B) 200 types

(C) 300 types (D) 400 types

Answer (B)

75. Which island in Brahmaputra is the largest riverine island in the world?

(A) Driver

(B) Barren Island

(C) Great Nicobar Island

(D) Mazuli (Majuli)

Answer (D)

76. Where is the Miradata fair held in the Rajab Month 16 to 22nd?

(A) Girnar (B) Bhavnagar

(C) Kwant (D) Unavas

Answer (D)

77. How many types of tunes have been described by Pandit Ahobale?

(A) 108 (B) 29

(C) 101 (D) 19

Answer (B)

78. Gujarati Poetry known as Garba and Garbi are chiefly associated with which types of Bhakti?

(A) Ram Bhakti (B) Hanuman Bhakti

(C) Meera Bhakti (D) Krishna Bhakti

Answer (D)

79. Dholka is a place between which two rivers?

(A) Narmada and Tapi

(B) Sabarmati and Narmada

(C) Bhogavo and Sabarmati

(D) Sabarmati and Mahi

Answer (C)

80. What was built in Lothal to facilitate the Ships?

(A) Hall (B) Dockyard

(C) Pillar (D) Grill

Answer (B)

81. In which language the earliar Buddhist literature was written?

(A) Hindi (B) Sanskrit

(C) Magadhi (D) Pali

Answer (D)

82. The ruler of Vallabhi belonged to which Dynasty?

(A) Maitrak Dynasty (B) Vijay Nagar Dynasty

(C) Mughal Dynasty (D) Vansh Dynasty

Answer (A)

83. Who has written the book 'Bij Ganit'?

(A) Shankaracharya (B) Bhaskaracharya

(C) Vatsayayan (D) Maharshi Patanjali

Answer (B)

84. Hindu caves are built during the reign of which dynasty?
(A) Ashoka Dynasty (B) Maurya Dynasty
(C) Kunala Dynasty (D) Rashtrakuta Dynasty

Answer (D)

85. How many percentage of the total land of India occupies Red Soil?
(A) 19% (B) 29%
(C) 39% (D) 40%

Answer (A)

86. Leopard belongs to which family?
(A) Lion (B) Tiger
(C) Dog (D) Cat

Answer (D)

87. Watermelon and Cucumber are of which types of agricultural crops in India?
(A) Kharif crops (B) Zaid crops
(C) Rabi crops (D) Plantation crops

Answer (B)

88. Which are the main source of surface water?
(A) Seas (B) Lakes
(C) Rivers (D) Ponds

Answer (C)

89. In which country the Bauxite was found first time in 1921?
(A) India (B) America
(C) China (D) France

Answer (D)

90. 20% rich people of the country share 40% of National income and the Poorest 20% people share how much percentage of National income?
(A) 30% (B) 20%
(C) 10% (D) 5%

Answer (C)

91. In which year the World Trade Organisation was established?
(A) 1950 (B) 1985
(C) 1995 (D) 2015

Answer (C)

92. Where was the first time "Earth conference" organised in 1972?
(A) Stockholm in Sweden
(B) Imphal in India
(C) Geneva in Switzerland
(D) America in Washington

Answer (A)

93. In which year Air Pollution Act was passed in India?
(A) 1961 (B) 1971
(C) 1981 (D) 1999

Answer (C)

94. Concept of poverty was first propounded by director of which organisation?
(A) WTO (B) WHO
(C) ECOSOC (D) UNICEF

Answer (B)

95. According to census counting of 2011, how many educated unemployed were in India?
(A) 54 million (B) 79 million
(C) 81 million (D) 84 million

Answer (D)

96. Till 2015 there were how many employment exchange centres were in our country?
(A) 908 (B) 947
(C) 1010 (D) 1189

Answer (B)

97. According to early hypothesis 'Varna System' was based on how many occupations?
(A) 10 (B) 6
(C) 4 (D) 2

Answer (C)

98. In which article of Indian Constitution Schedule tribes are included?
(A) Article-341 (B) Article-342
(C) Article-29 (D) Article-15

Answer (B)

99. According to which Article, untouchability is totally eradicated and its practice in any form is prohibited?
(A) Article-17
(B) Article-29(a)
(C) Article-341
(D) Article-25

Answer (A)

100. After which year Terrorism has increased in Kashmir?
(A) 1962 (B) 1965
(C) 1988 (D) 1999

Answer (C)

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