NATIONAL TALENT SEARCH EXAMINATION (NTSE-2020) STAGE -1

STATE : ANDHRA PRADESH PAPER : MAT

Date: 03/11/2019

Max. Marks: 100 **SOLUTIONS** **Time allowed: 120 mins**

Direction :

Direction: In Question nos. 1 to 10: There are four terms in each question. The term right to symbol :: have some relationship as the term of the left to the symbol:: and out of the four, one term is missing, which is among one of the given four alternatives, find the correct alternatives.

1. Gir: Gujarat : : Kaziranga :–

(1) Assam (2) Kerala (3) Bengal (4) Bihar

Ans. (1)

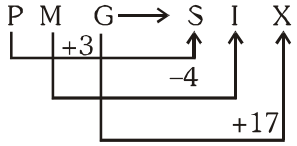
Sol. Kaziranga national park is situated in assam

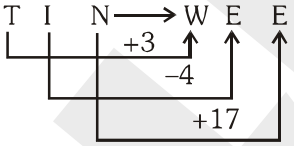
2. PMG : SIX : : TIN :–

(1) SEE (2) WEB (3) WEE (4) BEE

Ans. (3)

Sol. PMG : SIX : : TIN : WEE





3. P.V. Sindhu : Badminton :: Deepak Puniya : _____

(1) Boxing (2) Wrestling (3) Cricket (4) Hockey

Ans. (2)

Sol. Wrestling

Deepak puniya is famous for wrestling.

4. Durand Cup : Football:: Uber cup :

(1) Chess (2) Cricket (3) Hockey (4) Badminton

Ans. (4)

Sol. Badminton

Uber cup is a award related to Badminton

5. Earth : Moon : : _____ : Phobos

(1) Mars (2) Mercury (3) Jupiter (4) Venus

Ans. (1)

Sol. Mars

Mars natural satellite is Phobos.

6. Doctor : Patient :: Lawyer:

(1) Client (2) Accused (3) Customer (4) Magistrate

Ans. (1)

Sol. By observation

7. Chandrayan: 2019 : : Mangalyan : ____

(1) 2020 (2) 2016 (3) 2017 (4) 2014

Ans. (4)

Sol. Mangalyan is a space probe orbiting mars since

8. Factory : : Production : : School : _____

(1) Education (2) Discipline (3) Teacher (4) Building

Ans. (1)

Sol. Equation

Factory gives us production, school gives us equation.

9. AFC : DIF : : BED : ____

(1) CGF (2) EIG (3) EHG (4) EGH

Ans. (3)

Sol. EHG

AFC : DIF : : B E D : E H G

+3

+3

+3

10. EART : CCPV : : BATH : _____

(1) DZJR (2) CDBA (3) ZCRJ (4) DCBA

Ans. (3)

Sol. ZCRJ

EART : CCPV : : B A T H : Z C R J

−2

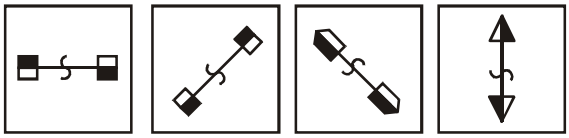
+2

−2

+2

Direction : In Question nos. 11 to 20: Out of the four figures (1), (2), (3), (4) given in each question, three are similar in a certain way. Choose the figure which is different from the other figures.

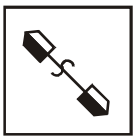
11. Choose the figure which is different from the rest.



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

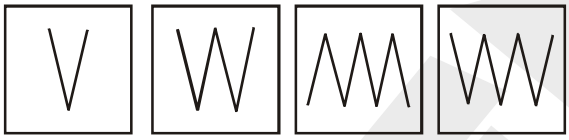
(1) 1 (2) 3 (3) 2 (4) 4

Ans. (2) 3

Sol. 

In all ather figures shaded part is on opporite side.

12. Choose the figure which is different from the rest.



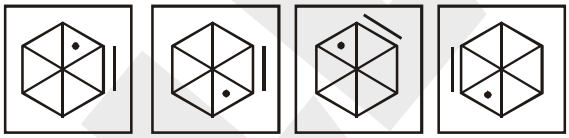
(1) (2) (3) (4)

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

Ans. (2) 3

Sol. This fig have different direction from other.

13. Choose the figure which is different from the rest.



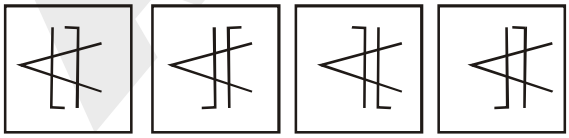
(1) (2) (3) (4)

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

Ans. (2) 2

Sol. In all other fig (•) dot is place previous from line.

14. Choose the figure which is different from the rest.



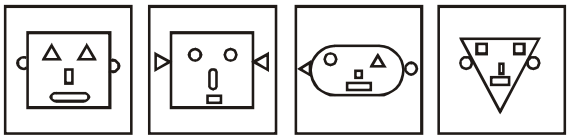
(1) (2) (3) (4)

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

Ans. (3) 4

Sol. By observation

15. Choose the figure which is different from the rest.



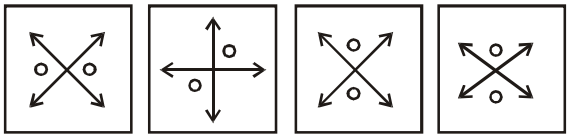
(1) (2) (3) (4)

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

Ans. (3) 3

Sol. All other figures have same *eyes*. But this fig have different *eye*.

16. Choose the figure which is different from the rest.



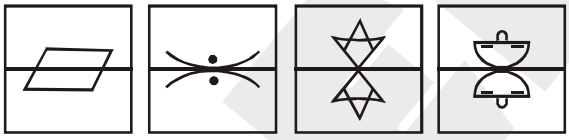
(1) (2) (3) (4)

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

Ans. (1) 4

Sol. By observation

17. Choose the figure which is different from the rest.



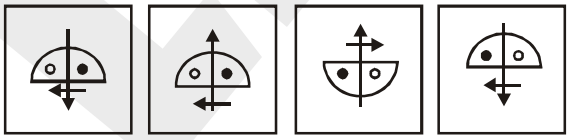
(1) (2) (3) (4)

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

Ans. (2) 1

Sol. All other figures have mirror image.

18. Choose the figure which is different from the rest.



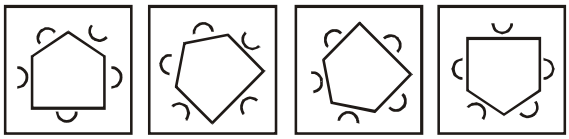
(1) (2) (3) (4)

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

Ans. (2) 2

Sol. All other figures have arrow in same side.

19. Choose the figure which is different from the rest.



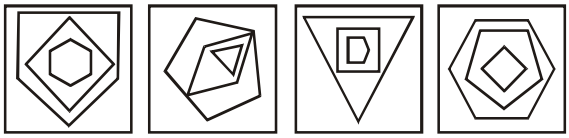
(1) (2) (3) (4)

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

Ans. (3) 2

Sol. By observation

20. Choose the figure which is different from the rest.



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

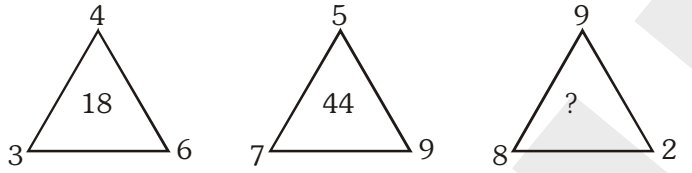
(1) 2 (2) 1 (3) 3 (4) 4

Ans. (2) 1

Sol. By observation

Direction : In Question nos. 21 to 30: In these questions, numbers are arranged on the basis of some rules. One place is vacant, which is indicated as "?". Find out the correct alternatives to replace the question mark "?".

21.



(1) 72 (2) 77 (3) 56 (4) 74

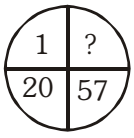
Ans. (4)

Sol. $4 \times 3 + 6 = 18$

$5 \times 7 + 9 = 44$

$9 \times 8 + 2 = 74$

22.



(1) 118 (2) 114 (3) 121 (4) 115

Ans. (1)

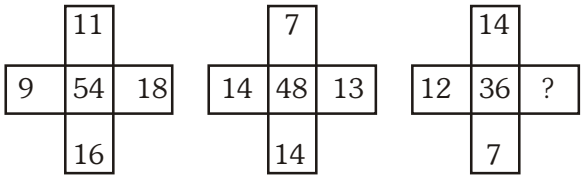
Sol. $2^3 - 7 = 1$

$3^3 - 7 = 20$

$4^3 - 7 = 54$

$5^3 - 7 = 118$

23.



(1) 4 (2) 9 (3) 3 (4) 11

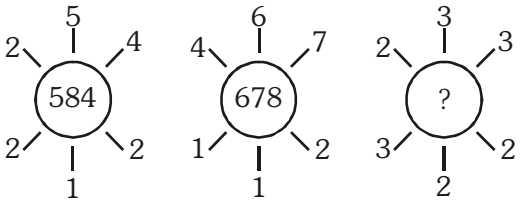
Ans. (3)

Sol. 9 + 16 + 18 + 11 = 54

14 + 14 + 13 + 7 = 48

12 + 7 + 3 + 14 = 36

24.



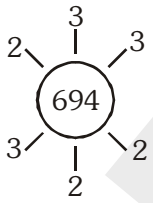
(1) 649 (2) 691 (3) 964 (4) 694

Ans. (4)

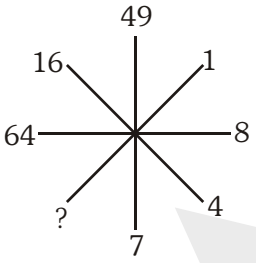
Sol. 3 × 2 = 6

3 × 3 = 9

2 × 2 = 4



25.



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

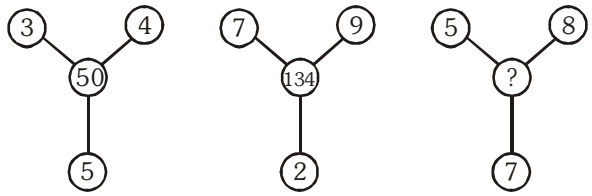
Ans. (4)

Sol. $1^2 = 1$

$8^2 = 64$

$4^2 = 16$

$7^2 = 49$

26. 

(1) 144 (2) 138 (3) 140 (4) 136

Ans. (2)

Sol. $5^2 + 8^2 + 7^2 = 138$

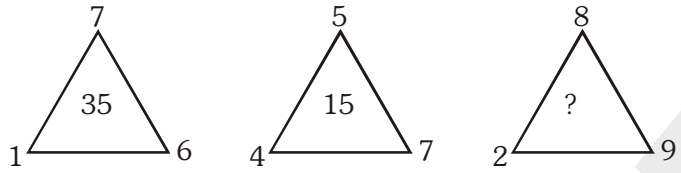
27.

3	2	1
6	5	4
7	8	9
39	38	?

(1) 35 (2) 36 (3) 37 (4) 41

Ans. (1)

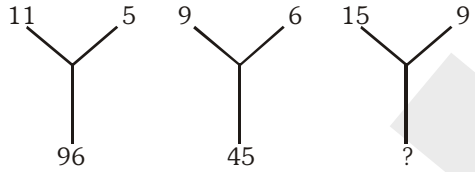
Sol. $9 \times 4 - 1 = 35$

28. 

(1) 74 (2) 46 (3) 56 (4) 72

Ans. (3)

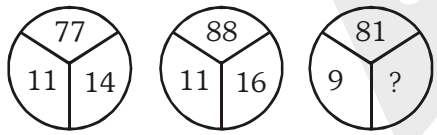
Sol. $8 \times (9 - 2) = 8 \times 7 = 56$

29. 

(1) 138 (2) 144 (3) 140 (4) 135

Ans. (2)

Sol. $15^2 - 9^2 = 144$

30. 

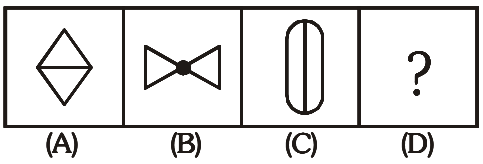
(1) 20 (2) 27 (3) 18 (4) 16

Ans. (3)

Sol. $\frac{81}{9} = 9 \times 2 = 18$

Direction: In Question nos. 31 to 40 : The following questions consists of two sets of figures A, B, C and D constitute the problem set while figures 1, 2, 3 and 4 constitute the answer set. A definite relationship exists between figures A and B. You are required to establish a similar relationship between figures C and D by choosing a suitable figure D from the answer set.

31. Problem Figures

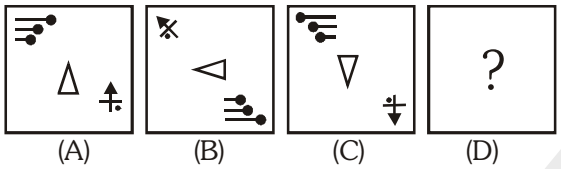


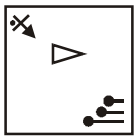
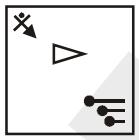
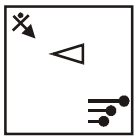
(1) 
(2) 
(3) 
(4) 

Ans. (4)

Sol. By observation

32. Problem Figures

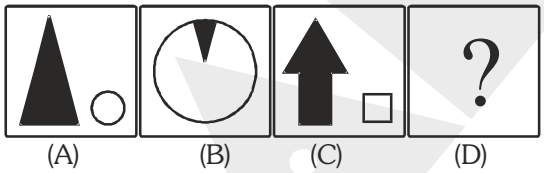


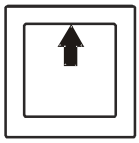
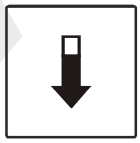
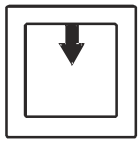
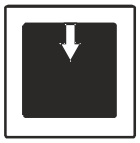
(1) 
(2) 
(3) 
(4) 

Ans. (3)

Sol. By observation

33. Problem Figures

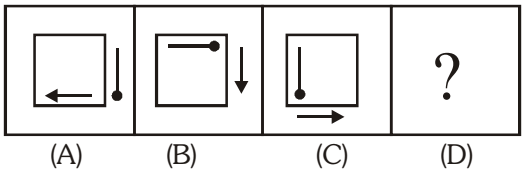


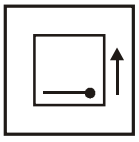
(1) 
(2) 
(3) 
(4) 

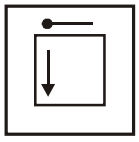
Ans. (3)

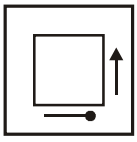
Sol. By observation

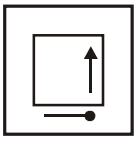
34. Problem Figures



(1) 

(2) 

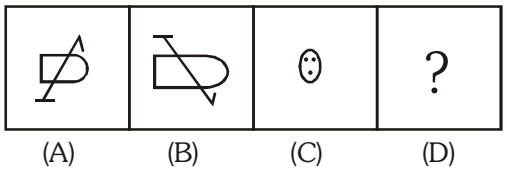
(3) 

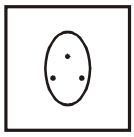
(4) 

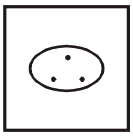
Ans. (4)

Sol. By observation

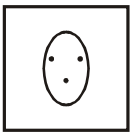
35. Problem Figures



(1) 

(2) 

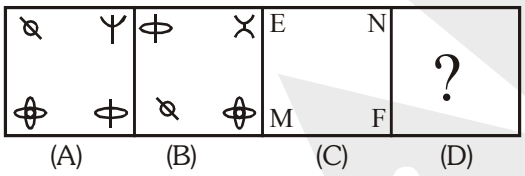
(3) 

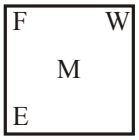
(4) 

Ans. (1)

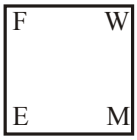
Sol. By observation

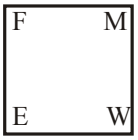
36. Problem Figures



(1) 

(2) 

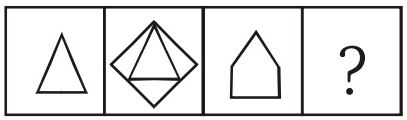
(3) 

(4) 

Ans. (3)

Sol. By observation

37. Problem Figures

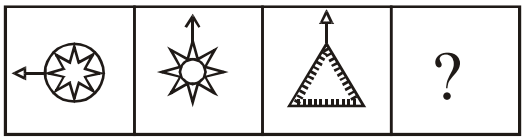


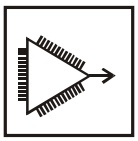
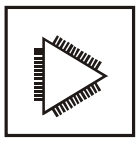
(1) 
(2) 
(3) 
(4) 

Ans. (1, 3)

Sol. By observation

38. Problem Figure

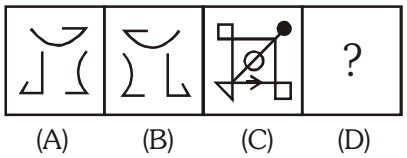


(1) 
(2) 
(3) 
(4) 

Ans. (1)

Sol. By observation

39. Problem Figure

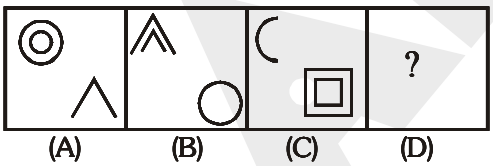


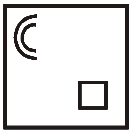
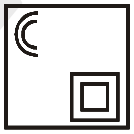
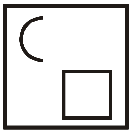
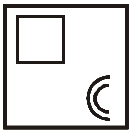
(1) 
(2) 
(3) 
(4) 

Ans. (2)

Sol. By observation

40. Problem Figures



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

Ans. (4)

Sol. By observation

Direction: In Question nos. 41 to 45: Read the following and answer the questions given below:

In a united family, there are six members

(i) They are A, B, C, D,Eand F.

(ii) A and B are married couple

(iii) A is a male member.

(iv) D is the only son of C, who is the brother of A.

(v) E is the sister of D.

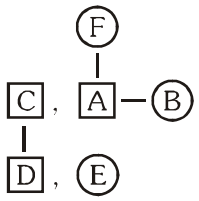
(vi) B is the daughter-in-law of F, whose husband has died.

41. How many male members are there in the family?

(1) Three (2) Four (3) One (4) Two

Ans. (1)

Sol.



42. How is F related to C ?

(1) Sister-in-law (2) Sister (3) Mother (4) Mother-in-law

Ans. (3)

43. Who is C to B?

(1) Brother (2) Son (3) Nephew (4) Brother-in-law

Ans. (4)

44. How is F related to A?

(1) Sister-in-law (2) Sister (3) Mother-in-law (4) Mother

Ans. (4)

45. How is E related to C?

(1) Mother-in-law (2) Daughter (3) Mother (4) Sister

Ans. (2)

Direction : In Question nos. 46 to 55 : Each of the following questions consists of the five figures marked A, B, C, D and E called the problem figures followed by four alternatives marked 1, 2, 3 and 4 called the answer figures. Select a figure which will continue the same series established by the five problem figures.

46. Problem Figure :

Answer Figures :

(1) 

(2) 

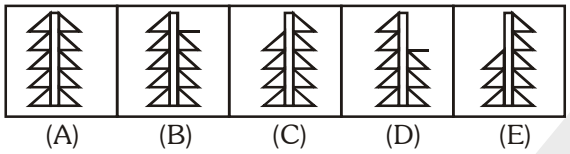
(3) 

(4) 

Ans. (4)

Sol. By observation

47. Problem Figure



(1) 

(2) 

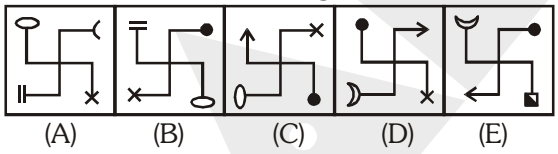
(3) 

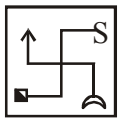
(4) 

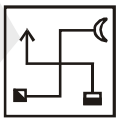
Ans. (4)

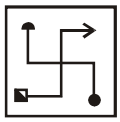
Sol. By observation

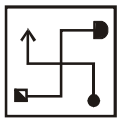
48. Problem Figure



(1) 

(2) 

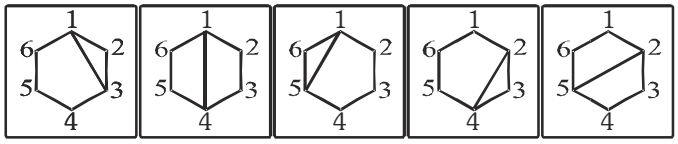
(3) 

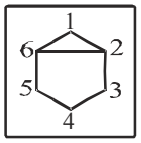
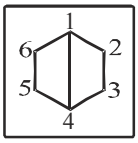
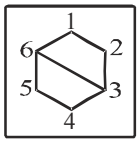
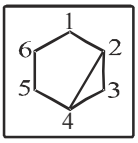
(4) 

Ans. (1)

Sol. By observation

49. Problem Figures

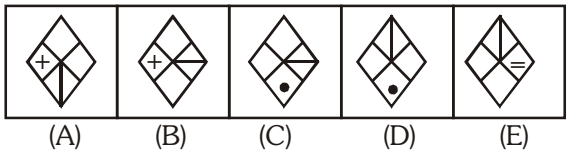


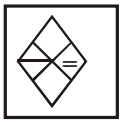
(1)  (2)  (3)  (4) 

Ans. (1)

Sol. By observation

50. Problem Figures



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

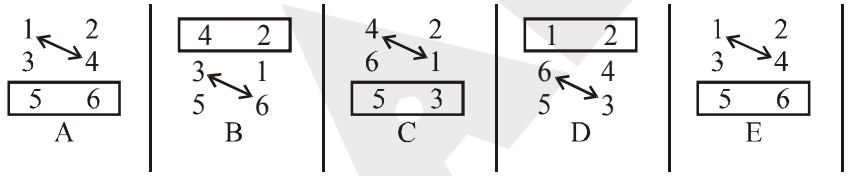
Ans. (1)

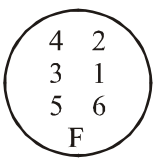
Sol. By observation

51. Problem Figures

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

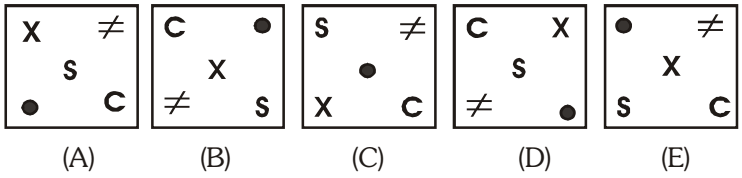
Ans. (1)

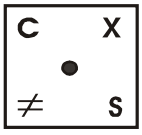
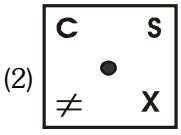
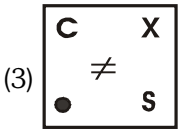
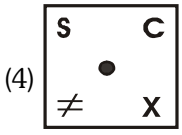
Sol. 



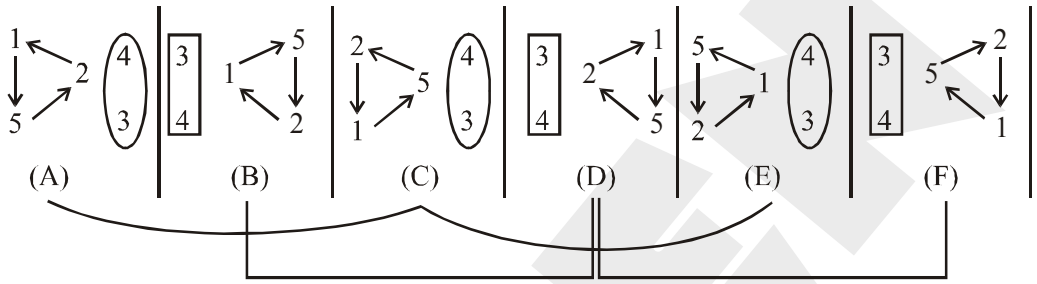
Also, series is following A, B, C, D, A.....pattern

52. Problem Figures

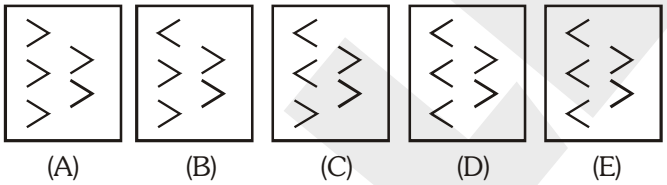


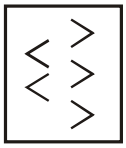
(1) 
(2) 
(3) 
(4) 

Ans. (2)

Sol. 

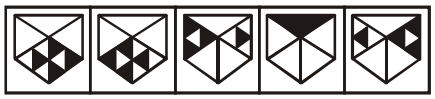
53. Problem Figures



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

Ans. (2)

Sol. One by one all figure are changing

54. 

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

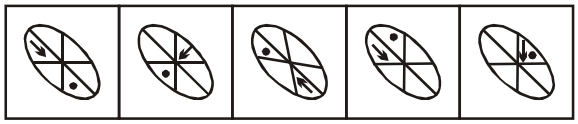
Ans. (1)

Sol. Dorp part is rotating clockwise.

black Δ is rotating anticlockwise.

white Δ is rotating clockwise.

55. Problem Figures:



(A) (B) (C) (D) (E)

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

Ans. (2)

Sol. ↓ is moving 2 steps clockwise.

is moving 1 step clockwise

Direction : Questions (56 to 65) : 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 alterantives. Find the correct aternative.

56. __ ABA _ _ BA _ AB

(1) BBABA (2) ABBAB (3) BAABB (4) ABBBA

Ans. (2)

Sol. A B | A B | A B | A B | A B | A B

57. A _ BAB _ AB _ ABB

(1) ABB (2) AAA (3) BBA (4) BBB

Ans. (4)

Sol. A B B | A B B | A B B | A B B.

58. PQRS _ _ RSPRS _ _ SPO_

(1) RPQSQ (2) SQPQR (3) QRSPQ (4) SPQPQ

Ans. (2)

Sol. P Q R S | Q R S P | R S P Q | S P Q R

P Q R S in cyclic continuous pattern.

59. _ op _ _ mo_ n _ _ pnmop_

(1) mnompn (2) mpnmop (3) mnpmon (4) mnpomn

Ans. (3)

Sol. m o p n | m o p n | m o p n | m o p n

60. _BAA_BBB_AB_

(1) AABB (2) BAAB (3) ABAB (4) BBAB

Ans. (4)

Sol. B B A A B B | B B A A B B

61. W_ V_ _XV_W_VW_XV

(1) XWVXWV (2) VWXVWX (3) XVWXWX (4) XWWWXW

Ans. (4)

Sol. W X V W | W X V W | W X V W | W X V

62. AC_CAB_BACA_ABA_ACAC

(1) BCBB (2) BABB (3) AACB (4) ACBC

Ans. (3)

Sol. A C A C A B A B | A C A C A B A B | A C A C

63. ABB_ __AB_B_BBA_A

(1) BBBAB (2) BBABB (3) ABAAB (4) BABBA

Ans. (1)

Sol. A B B B B | A B B B | A B B | A B | A

64. C_ BBA_CAB_AC_AB_AC

(1) ACBCB (2) BABCC (3) ABCBC (4) BCACB

Ans. (1)

Sol. C A B | B A C | C A B | B A C | C A B | B A C

65. UV_V_U_WV_UV_VUU_WVU

(1) VUWVUW (2) UVWVUW (3) WUVUWV (4) WVVUWV

Ans. (3)

Sol. U V W V V | U V WV V | UV W VU | U V WVU

Questions (66 to 70) : Some letters are given in Column I and some digits are given in column II represents any letter of column I. Study the columns and write the alternative letter after choosing the correct altarnative against the corresponding question.

Column-I	Column-II
DMBQZ	67027
ANYQD	84917
MBTYC	58603
TQCNM	54316
BDZAT	72509
ZQYAB	48902
QNTYM	41586
YBTCZ	80532
ZNMAC	29631
MTQYZ	46528

66. The product of the codes D and N is _____

(1) 21 (2) 7 (3) 5 (4) 8

Ans. (2)

Sol. By observation

D = 7, N = 1

D × N = 7

67. The code for M is _____

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

Ans. (3)

Sol. By observation

M = 6

68. The sum of the codes T and Q is _____

(1) 12 (2) 11 (3) 10 (4) 9

Ans. (4)

Sol. By observation

T = 5, Q = 4

T + Q = 9

69. The code for T is _____

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

Ans. (3)

Sol. By observation

T = 5

70. The code for A is _____

(1) 9 (2) 3 (3) 0 (4) 8

Ans. (1)

Sol. By observation

A = 9

Direction : In Question nos. 71 to 80 : Questions have become wrong due to wrong order of signs. Choose the correct order of signs from the four alternatives given under each question, so that the equation becomes right. Write it in your answer sheet against the corresponding question number.

71. $17 = 3 + 43 \times 8$

(1) $\times = +$ (2) $\div = +$ (3) $- = +$ (4) $+ - =$

Ans. (1)

Sol. $17 \times 3 = 43 + 8$

$51 = 51$

72. $6 - 3 = 12 \div 6$

(1) $\times = +$ (2) $= + -$ (3) $- = +$ (4) $+ = \div$

Ans. (1)

Sol. $6 \times 3 = 12 + 6$

$18 = 18$

73. $5 = 4 + 11 - 9$

(1) $\times = +$ (2) $- \times =$ (3) $+ = \div$ (4) $+ = -$

Ans. (1)

Sol. $5 \times 4 = 11 + 9$

$20 = 20$

74. $48 + 8 \div 8 = 2$

(1) $- \div =$ (2) $= + \times$ (3) $+ = \div$ (4) $\div = -$

Ans. (4)

Sol. $48 \div 8 = 8 - 2$

$6 = 6$

75. $30 \div 26 \times 8 = 7$

(1) $- + =$ (2) $- \times =$ (3) $+ = \times$ (4) $\times - =$

Ans. (3)

Sol. $30 + 26 = 8 \times 7$

$56 = 56$

76. $4 \times 9 = 6 + 1$

(1) = − +　　(2) + − =　　(3) × − +　　(4) = + −

Ans. (1)

Sol. $4 \times 9 = 6 + 1$

change sign acc. to option (1)

$4 = 9 - 6 + 1$

$4 = 4$

77. $6 + 12 = 48 - 24$

(1) + − =　　(2) ÷ = +　　(3) + = ÷　　(4) ×− =

Ans. (4)

Sol. $6 + 12 = 48 - 24$

$6 \times 12 - 48 = 24$ (after sign change)

$72 - 48 = 24$

$24 = 24$

78. $22 = 14 + 48 - 12$

(1) − × ÷　　(2) + = −　　(3) × = −　　(4) = + ÷

Ans. (2)

Sol. $22 = 14 + 48 - 12$

$22 + 14 = 48 - 12$ (after sign change)

$36 = 36$

79. $3 \times 8 = 19 \div 5$

(1) × + =　　(2) = + −　　(3) × = +　　(4) ÷ × =

Ans. (3)

Sol. $3 \times 8 = 19 \div 5$

$\Rightarrow 3 \times 8 = 19 + 5$ (after sign change)

$\Rightarrow 24 = 24$

80. $59 - 21 \times 8 = 10$

(1) − = +　　(2) = + −　　(3) + = ×　　(4) − = ×

Ans. (3)

Sol. $59 - 21 \times 8 = 10$

$\Rightarrow 59 + 21 = 8 \times 10$ (after sign change)

$\Rightarrow 80 = 80$

Direction : In Question nos. 81 to 90 : In the number series given below, one number is missing. Each series is followed by four alternatives (1), (2), (3) and (4). One of them is the right answer. Identify and indicate it as per the "Instructions".

81. 39, 56, 73, 90,107,124,__

(1) 161 (2) 147 (3) 141 (4) 137

Ans. (3)

Sol. $\underset{+17}{39,} \quad \underset{+17}{56,} \quad \underset{+17}{73,} \quad \underset{+17}{90,} \quad \underset{+17}{107,} \quad \underset{+17}{124,} \quad ?$

$\therefore \quad 124 + 17 \Rightarrow 141$

82. 14, 11, 13, 10, 12, 9_____

(1) 6 (2) 15 (3) 11 (4) – 3

Ans. (3)

Sol. $14, \quad \overset{-1}{11}, \quad \overset{-1}{13}, \quad 10, \quad 12, \quad 9, \quad ? \quad \boxed{11}$

$\underset{-1}{\quad} \quad \underset{-1}{\quad} \quad \underset{-1}{\quad}$

83. 0, 6, 24, 60, 120,_____

(1) 216 (2) 196 (3) 206 (4) 210

Ans. (4)

Sol. $1^3 - 1, \; 2^3 - 2, \; 3^3 - 3, \; 4^3 - 4, \; 5^3 - 5, \; \boxed{6^3 - 6} = 10$

84. 789, 678, 567, 456, 345,_____

(1) 234 (2) 111 (3) 254 (4) 244

Ans. (1)

Sol. $7\,8\,9 \quad 6\,7\,8 \quad 5\,6\,7 \quad 4\,5\,6 \quad 3\,4\,5 \quad \boxed{2}\,\boxed{5}\,\boxed{4}$

85. 6, 24, 60,120,

(1) 224 (2) 180 (3) 210 (4) 240

Ans. (3)

Sol. $6, \quad 24, \quad 60, \quad 120, \quad ? \quad \boxed{210}$

$2^3 - 2, \quad 3^3 - 3, \quad 4^3 - 4, \quad 5^3 - 5, \quad 6^3 - 6$

86. 17,37, 77,157_____

(1) 347 (2) 317 (3) 217 (4) 417

Ans. (2)

Sol. 17, 37, 77, 157, ? 317

+20 +40 +80 +160

87. 4, 32, 8, 64,16,128,_____

(1) 156 (2) 48 (3) 32 (4) 64

Ans. (3)

Sol. 4, 32, 8, 64, 16, 128, ? 32

×2 ×2 ×2

×2 ×2

88. 0, 9, 21, 36, 54, _____

(1) 77 (2) 75 (3) 69 (4) 144

Ans. (2)

Sol. 0, 9, 21, 36, 54, ? 75

+9, +12, +15, +18, +21

+3 +3 +3 +3

89. 26, 4, 20, 10, 14, 16, 8, 22, 2, 28, _____

(1) 34 (2) 6 (3) – 4 (4) – 6

Ans. (3)

Sol. 26, 4, 20, 10, 14, 16, 8, 22, 2, 28, – 4

–6 –6 –6 –6 –6

+6 +6 +6 +6

90. 12, 15, 27, 42, 69, 111, _____

(1) 164 (2) 174 (3) 180 (4) 160

Ans. (3)

Sol. 12, 15, 27, 42, 69, 111, ?

12 + 15 = 27

15 + 27 = 42

27 + 42 = 69

42 + 69 = 111

$\therefore$ 111 + 69 $\Rightarrow$ 180

Direction : In Question nos. 91 to 95 : Some letters are given in Column I and some digits are given in Column II. Each digit of column II represents any letter of column I. Study the columns and write the alternative letter choosing the correct alternative against the corresponding question.

Column-I	Column-II
AMRVT	65479
RTHIB	46128
MRBZI	86317
IAMRV	85679
HIBZA	39218
MRTAB	47961
MVRTH	47526
RZIBH	38621
BZIRV	83156
IMVRH	75826

91. The code I is _____

(1) 7 (2) 1 (3) 2 (4) 8

Ans. (4)

Sol. The code for 'I' is 8

By observation

92. The code for H is _____

(1) 1 (2) 3 (3) 2 (4) 6

Ans. (4)

Sol. The coe for H is '2'

93. The code for Z is _____

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

Ans. (4)

Sol. The code for z is '3'

94. The sum of the codes H and Z is _____

(1) 5 (2) 6 (3) 10 (4) 9

Ans. (1)

Sol. sum of code 'H' and code 'Z'

'2' + '3' (from above Q - 92 & Q 93)

$\Rightarrow$ '5'

95. The code for A is _____

(1) 9 (2) 8 (3) 3 (4) 6

Ans. (1)

Sol. The code for 'A' is '9'

Q. 96 to Q. 100

(adv.)
A, C, E → tea to coffee.
(teach) (Doctor)

Direction: In Question nos. 96 to 100 : Read the following information carefully and answer the questions that follows

(i) There is a group of five persons A, B, C, D and E.

(ii) One of them is Teacher, one is a Doctor, one is a Journalist, one is an Industrialist and one is an advocate.

(iii) Three of them - A, C and advocate prefer tea to coffee and two of them - B and the journalist prefer coffee to tea.

(iv) The industrialist and D and A are friends to one another but two of these prefer coffee to tea.

(v) The Teacher is C's brother.

Sol. (96 to 100)

(Teacher) (Doctor) (Advocate)
A, C, E ⟶ Tea to Coffee

(Industrilist) (Journlist)
B, D ⟶ Coffee to Tea

96. Which of the above statements is superfluous?

(1) ii (2) iii (3) v (4) None

Ans. (4)

97. Which of the following groups includes a person who likes tea but is not an advocate?

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

Ans. (1)

98. Who is an industrialist?

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

Ans. (3)

99. Who is teacher?

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

Ans. (2)

100. Who is a doctor?

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

Ans. (1)