

**MAHARASHTRA**  
**NATIONAL TALENT SEARCH EXAMINATION, 20 18-19**  
**STAGE – 01**

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**MENTAL ABILITY (MAT)**

**SOLUTIONS**

1. (4)  
In Option (4)  
I J L M T  
9 10 12 13 20  
Sum of first 4 alphabets = 44  
and divided by 2 should be equal to = 22  
So D - odd one out.
2. (3)  
(a) CEF18 = 3 + 5 + 7 = 15 + 3 = 18  
(b) KMO42 = 11 + 13 + 15 = 39 + 3 = 42  
(c) UWY70 = 21 + 23 + 25 = 69 + 1 = 70  
(d) RTV63 = 18 + 20 + 22 = 60 + 3 = 63  
C is odd one out
3. (4)  
Rotate the figure in anticlockwise direction.
4. (4)  
See the position of figure from (1) to (2) figure you will get the required pattern.
5. (2)  
By observing first and second figure, you will get required pattern for the required figure.
6. (2)  
By observing if you see the middle letter between 11<sup>th</sup> letter from right and 14<sup>th</sup> from left is L and L is 6<sup>th</sup> to the right of E.
7. (1)  
25 : 100 :: 81 : ?  
 $25 = 5^2 = 52 \times 4 = 100$   
 $81 = 9^2 = 92 \times 8 = 648$
8. (3)  
Odd figure is figure number 3.
9. (2)  
By observation
10. (4)  
By observation of all the figure odd one out is 4<sup>th</sup> figure
11. (2)

10      20      40      80  
 13,      23,      43,      83,      163, \_\_  
 $10 \times 2 = 20$   
 $20 \times 2 = 40$   
 $40 \times 2 = 80$   
 $80 \times 2 = 160$   
 So,  $163 + 160 = 323$

12. (4)  
 12, 15, 21, 24, 30, 33, , \_  
 $12 + 3 = 15$  (3 is sum of 1+2)  
 $15 + 6 = 21$  (6 is sum of 1+5)  
 So,  $33 + 6 = 39$  (6 sum of digits)  
 $39 + 12 = 51$  (12 sum of digits)

13. (2)  
 16, 40, 100, 250, 625  
 Multiply each by 2.5

14. (3)  
 23, 29, 47, 75, \_  
 $23 + 6 (2 \times 3)$  product of digits = 29  
 $29 + 18 (2 \times 9)$  product of digits = 47  
 $47 + 28 (7 \times 4)$  product of digits = 75  
 $75 + 35 (5 \times 7)$  product of digits = 110

15. (1)  
 By given below,  
 $\epsilon$  will be opposite to  $\mu$   
 $\lambda$  will be opposite to  $\Psi$   
 $\Delta$  will be opposite to  $\delta$   
 So for 15 '  $\mu$ ' will not be adjacent to 6.

16. (2)  
 Opposite of  $\lambda - \Psi$

17. (1)  
 Figure 1 satisfies given condition

- \*18. Question is incorrect  
 it's like,  
 $22 \times 19 = 198$  } Figure 2  
 $33 \times 6 = 198$  }  
 $24 \times 12 = 288$  } Figure 3  
 $16 \times$  }

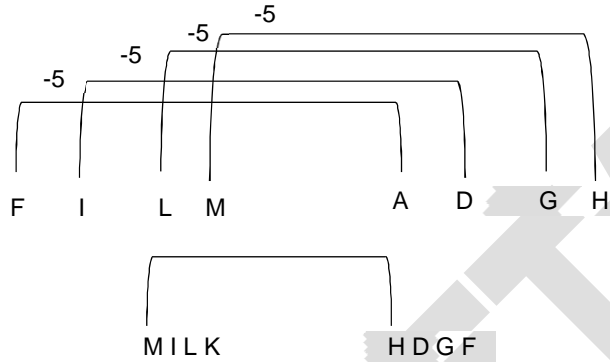
19. (4)
- 

Add cubes of all the number  $8^3 + 4^3 + 2^3 = 584$

20. (4)  
 By observation

21. (4)  
 By observation

22. (1)  
 In this pattern is like  
 Quotient is same in  $104 \div 13 = 8$   
 $64 \div 8 = 8$   
 Number 85 we will get by  $64 + 13 + 8 = 85$   
 So accordingly option 1 satisfies given condition.
23. (4)  
 225 satisfies given condition
24. (2)  
 81 satisfies given condition
25. (4)



So,

\*26. No. Option is correct.

M 132	K 112	J 10	H 8
169	121	100	64
100			
64			

27. (2)  
 ? : DURXQG :: POLICE : SROLFH  
 +3 in each case so AROUND is correct.

28-30. Solution Direction:-

	Marigold	Jai	Champak	Mogra
Meena	×	×	√	√
Sarika	√	√	√	√
Geeta	√	√	√	×
Neeta	×	√	√	√

28. (2)
29. (3)
30. (3)
31. (1)
- \*32. Options are not matching
33. (3)
34. (1)  
 $3 \times 2 = 29$                        $23 + 2 \times 3 = 29$   
 Similarly,  
 $6 \times 8 =$                                $86 + 48 = 134$

35. (3)  
 $11 + 5 = 36$  its like  $5^2 + 11 = 36$   
 Similarly,  
 $55 + 9 = 9^2 + 55 = 136$

36. (4)  
 By observation

37. (1)  
 By observation

\*38. Option are not correct

39. (1)

D(4)		H(8)
K(11)	M(13)	X(24)
G(7)		P(16)

Add  $4 + 11 + 7 = 22$   
 $48 - 22 = \frac{26}{2} = 13$

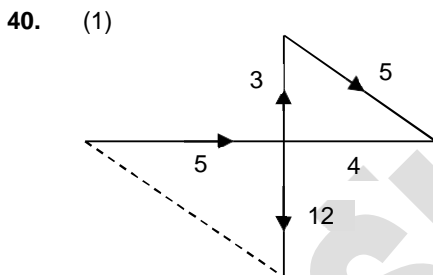
Add  $8 + 24 + 16 = 48$

Similarly,

N(14)		U(21)
O(15)	H	W(23)
A(1)		B(2)

Add  $14 + 15 + 1 = 30$   
 $\frac{46 - 30}{2} = 8$

Add  $21 + 23 + 2 = 46$



So applying Pythagoras theorem  $12^2 + 5^2 = \sqrt{169} = 13$

41. (2)  
 He is facing south

42. (2)  
 By observation

43. (3)  
 By observation

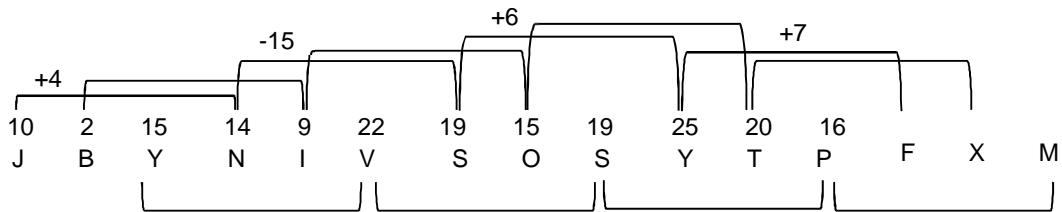
\*44. Question is wrong

\*45. Questions is ambiguous

46. (2)

A	B	C	D
M	L	K	J
Z	Y	X	W
Z	O	P	Q

47. (4)

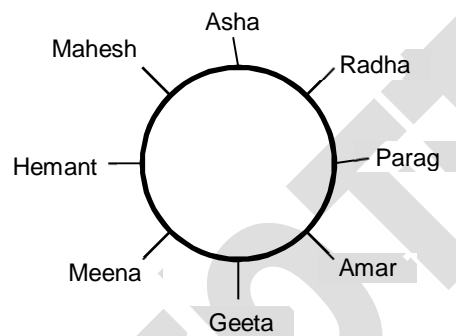


48. (1)  
By Observing

49. (2)  
vihx : uwxt :: ? : pazq  
→ bdez

50. (1)  
By observing

51-53 Solution Direction:-



51. (2)  
Parag

52. (3)  
Amar

53. (2)  
Asha

54. (3)  
Correct Figure

55. (1)  
Correct Figure

56. (2)  
Sequence Pattern

57. (3)  
Sequence Pattern

58. (1)  

$$\frac{R - 10}{S - 10} = \frac{1}{5}$$

$$\Rightarrow 5R - 50 = S - 10$$

$$\Rightarrow 5R - S = 40 \tag{1}$$

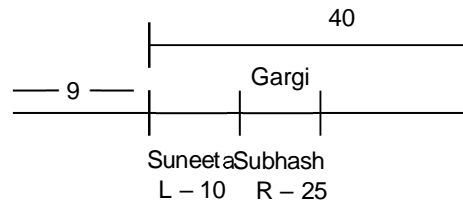
$$\frac{R + 10}{S + 10} = \frac{3}{5}$$

$$\Rightarrow 5R + 50 = 3S + 30$$

$$\Rightarrow 5R - 3S = -20 \tag{2}$$
 Solving equation (1) and equation (2)  $-3t + S = -20 - 40$   
 $-2S = -60$   
 $S = 30$   
 So,  $R = 14$

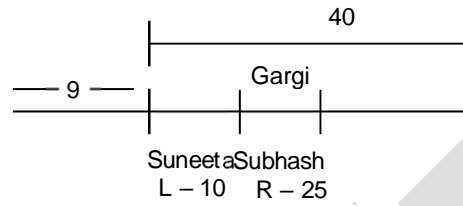
59. (2)  
20 years.

60. (3)



⇒ 18

61. (3)



⇒ 33

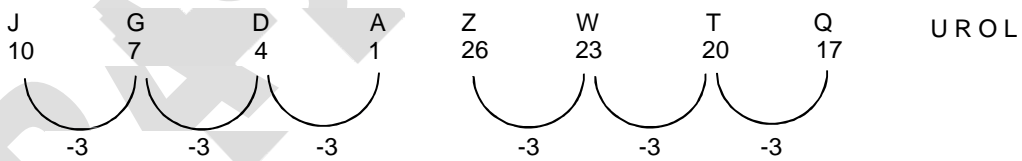
62. (4)  
Water Image

63. (1)  
Water Image

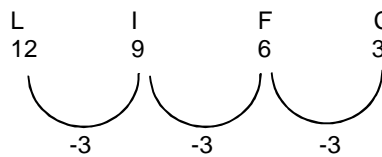
64. (3)  
 $60 - 37 = 23 \times 2 = 46$   
 $158 - 121 = 37 \times 2 = 74$   
 $318 - 269 = 49 \times 2 = 98$

65. (2)  
 $3 \times 5 + 7 \times 3 = 15 + 21 = 36$   
 $6 \times 4 + 2 \times 7 = 24 + 14 = 38$   
 $4 \times 3 + 5 \times 8 = 12 + 40 = 52$

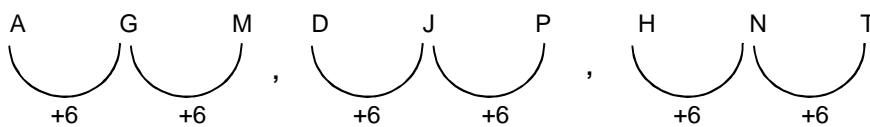
66. (3)



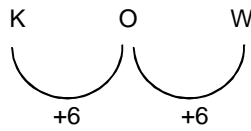
Similarly,



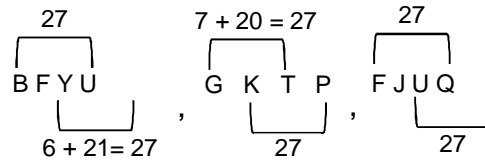
67. (4)



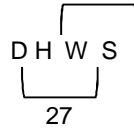
Similarly,



68. (2)



Similarly,



Alternate letter addition is 27.

69. (3)

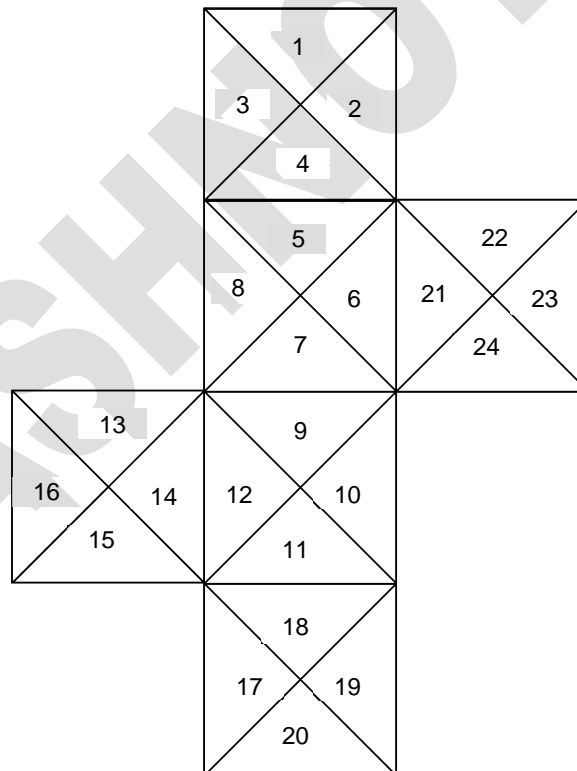
$$5C_2 \times 1C_1$$

$$\Rightarrow \frac{5 \times 4}{2 \times 1} \times 1$$

$\Rightarrow 10$  from one triangle

So,  $10 \times 4 = 40$

70. (4)



Simple  $\Rightarrow 24$

$1 + 2, 2 + 4, 1 + 3, 3 + 4 \rightarrow (4)$  each

$4 \times 6 \Rightarrow 24$  more

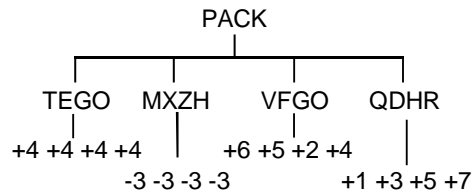
So, total  $\rightarrow 48$ .

Now,  $(8 + 7 + 9 + 12) \rightarrow 1$

This type  $\rightarrow 10$  more

So, total  $\rightarrow 58 + 4 = 62$  because of 3 to 21 to 12 big triangle and similar more.

71 – 73 Solution Direction:-



71. (2)  
 R A I N  
 18 1 9 14  
 N X F K  
 14 24 6 11  
 -3 -3 -3 -3

72. (4)  
 C R O P  
 D U T W  
 +1 +3 +5 +7

73. (1)  
 S A N D  
 19 1 19 4  
 W E R H  
 23 5 18 8  
 +4 +4 +4 +4

\*74. Bonus.

75. (2)  
 Logical

76. (1)  
 \_bc\_ ab\_ ca abc  
 a c b  
 Pattern abc, cab, bca and so on acb

77. (4)  
 abb\_baa\_a\_bab\_ab  
 a b b a  
 Pattern abba, baab, abba, baab so on abba

78. (3)  
 6 × 6

79. (3)  
 3 side point

80. (1)  
 Zero side point

81. (3)  
 Logical Pattern

82. (4)  
 Logical Pattern

83. (3)

84. (3)



85. (4)  
 86. (4)  
 943 symbol coding  
 Check the same number and same symbol.

87. (2)  
 Same as above

88. (2)  
 Look for respective Alphabet.

89. (2)  
 By unfolding the paper.

90. (3)  
 By unfolding the paper.

91. (4)  
 Show between Kabaddi and Cricket.

92. (4)  
 $58 + 72 + 80 = 210$

93. (2)  
 Do not play cricket and football.

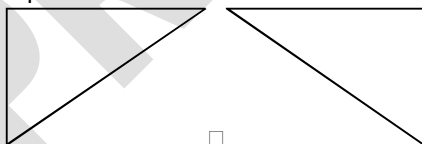
94. (3)  
 $3 \times 5 - 18 \div 3 \times 2 + 3$   
 $= 15 - (18 \div 3) \times 2 + 3$   
 $= 15 - (6 \times 2) + 3$   
 $= 15 - 12 + 3$   
 $= 3 + 3$   
 $= 6$

95. (3)  
 $4 + 8 \div 2 \times 5 = 7$   
 $= 4 + 20 - 7 = 24 - 7 = 17$

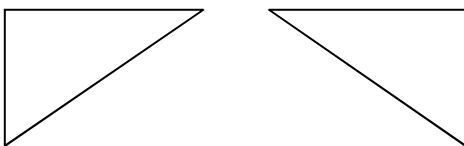
96. (3)  
 ? ! ( ) ^ % \$  
 By simple substitution

97. (2)  
 $45 + 39612$   
 By simple substitution

98. (1)  
 Shape →



52 26 68 39      62 36 34 47



54 28 30 41      60 34 32 45

99. (3)  
 $2567 : 4987 :: 7256 : ?$

$$2 + 5 + 6 + 7 : 4 + 9 + 8 + 7 :: 7 + 2 + 5 + 6 : ?$$

=20                      =28                      =20

$$7498$$

$$7 + 4 + 9 + 8 = 28$$

100. (4)

PRAASHNOTTAR