


FIITJEE

MAHARASHTRA NATIONAL TALENT SEARCH EXAMINATION, 2019-20 STAGE – 01

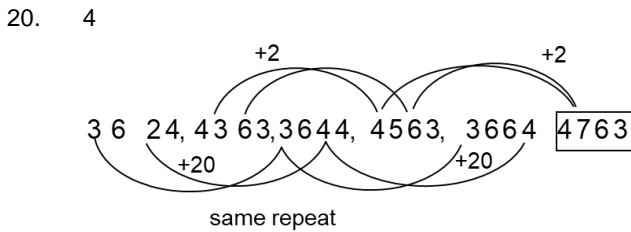
MENTAL ABILITY (MAT)

FIITJEE SOLUTIONS

1. 1
Sum of digits are multiple of 3.
2. 1
 $5^3 + 7 = 132$, $9^3 + 7 = 736$, $7^3 + 7 = 350$
 $\therefore 6^3 + 7 = 223$
3. 2
Sum of digits = 13 ($1+9+3=13$, $4+5+4=13$, $4+5+4=13$, $2+6+5=13$)
4. 4
Alternate letter has difference of 2, except 4(AWCZ)
5. 3 →
sum of all letter position is multiple of 3.
6. 4
Save → EVAS
7. Bonus all ig. are incorrect order.
8. 3
By observation  → reverse order in option 3
9. Bonus [all fig. are possible]
10. 1
The sum of the digits of the no. in each pair is the same
 $1+1+5+2+9=10$, $7+2+1+3+5=18$
Similarly, $1+5+2+9+4+3=24$, $2+1+3+5+4+9=24$
11. 2
Opposite element = "-" so it cannot be adjacent to it".
12. 3
< is opposite of D
13. 4
Opposite elements cannot be adjacent.
14. 3
Outer element comes inside.
15. Bonus 1, 2, 3, are same option

FIITJEE – THE FUNDAMENTAL APPROACH...

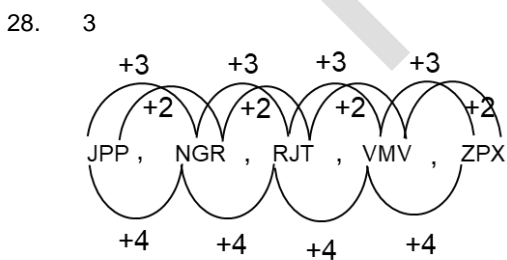
16. 3
Analogical figure.
17. 4
 $4 \times 2 - 2 = 6, 6 \times 3 - 2 = 16, 16 \times 4 - 2 = 62, 62 \times 5 = 310, -2 = 308, 308 \times 6 - 2 = 1846$
18. 3
Alternate series of +12, +24, +48
19. 1
+6, +12, +18, +24, +30



21. 1
22. 4
23. 4
- | | | | |
|----------|----------|----------|---------|
| ATUL | TUSHAR | AMAR | NISHANT |
| CRICKET | CRICKET | CRICKET | ⊗ |
| FOOTBALL | FOOTBALL | FOOTBALL | ⊗ |
| ⊗ | KABBADI | KABBADI | KABBADI |
| ⊗ | ⊗ | KHO-KHO | KHO-KHO |

24. 3
abc | bca | cab | abc
25. 2
abba | baab | abba | baab

26. 3
By observation
27. 2
By observation

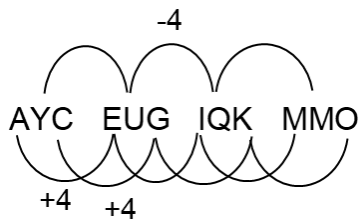


29. 2
 $J_{1610}P$ J = 10, P = 16
-

30. 1
Addition of place of letter

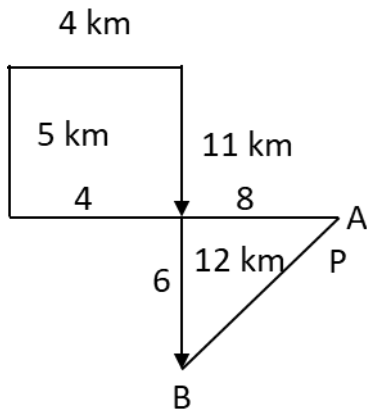
$$\therefore 29 = A + Y + C = 1 + 25 + 3$$

$$\therefore \text{MMO} = 13 + 13 + 15, \text{MMO} = 41$$



31. 4
Needs to check initial 2 terms are matching.
32. 4
33. 2
34. 4
35. 1
By putting the value.
36. 2
By putting the value.
37. 3.
38. 2
[Substituting value at the place of symbol and after mathematical operation again replacing value with symbol.]
39. 2
Continuous sequence.
40. 3
By observation
41. 2
10 is common in all four.
42. 4
32 only in ACTING.
43. 2
 $97 = 21 + 14 + 12 + 15 + 35$
44. 2
By observation
45. 4
By observation
46. 2
- | | |
|--|-----------------|
| | -7
7-
=77 |
| | 10
6-
=70 |
| | 18
5-
=68 |
47. 4

58. 2
 59. 3
 60. 3
 North



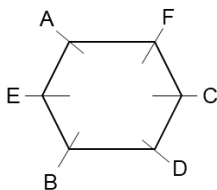
61. 4
 $OA = (12 - 4) = 8 \text{ km}$
 $OB = (11 - 5) = 6 \text{ km}$
 $AB = \sqrt{(8)^2 + (6)^2} = \sqrt{100} = 10 \text{ km}$

62. 1
 hab : mgf :: jicd : ?
 Ranking of respective letter from left side is equal to ranking of letter from right.
 jicd : kled

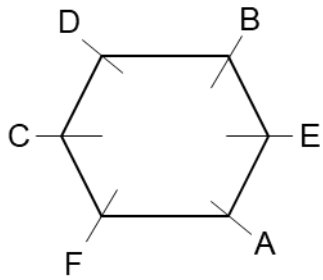
63. 1
-
- bza : bwy :: bsv : bnr

64. 2
 wsop : yvqp : ptw :
 Ranking of letter from left side is equal to ranking of letter from right.
 ptw = puy p

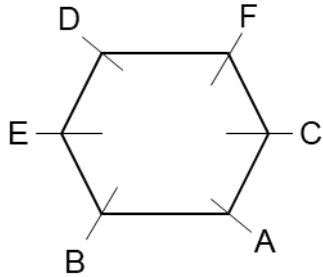
65 – 67



65. 1 (A)
 66. 4(C)



67. 1(A)



68. 2

69. 1

70 – 71

SOL. Ten years ago, the ratio of ages of sunil and anil was 1 : 7.

Let their ages would be x & $7x$.

So, present age of Sunil and Anil are $(x+10)$ & $(7x+10)$

Ten years hence, the ratio of their ages will be 1 : 2.

So,

$$\frac{x+20}{7x+20} = \frac{1}{2}$$

$$2x+40 = 7x+20$$

$$20 = 5x$$

$$x = 4$$

70. 1

Sunil's present age $x+10 = 4+10 = 14$ years

71. 2 Ten years before Anil's age = $7x = 7 \times 4 = 28$.

(2) 28 years

72. - 73

AMRUTA (11) ↓

SUNEETA (26) ↑

Total 60.

Amrita is 11th from front.

Suneeta is at 26th place from behind, so

Suneeta is $60+1-26 = 35$ th from front.

Sapna is at central place between Amrita & Suneeta.

72. Sapna is at $\frac{11+35}{2} = \frac{46}{2} = 23$ th from front.

Ans (3) 23

73. Sapna's is ranking from behind = $60+1-23 = 38$

Ans(2) 38

74. Ans (2)

75. Ans (3)

76. 4
 17 (68) 28
 11 (22) 14
 49 9
 Sol $\frac{17 \times 28}{7} = 68$
 $\frac{11 \times 14}{7} = 22$
 $\frac{49 \times 9}{7} = 63$

77. 3
 24(7)67
 53(6)25
 82 35
 $\frac{24+67}{13} = \frac{91}{13} = 7$
 $\frac{53+25}{13} = \frac{78}{13} = 6$
 $\frac{82+35}{13} = \frac{117}{13} = 9$
 Ans.(3)9

78 TO 80

78. 2
 AUEFG EOVWX IAPQR
 Sol. First two letters are vowel and next three letters are consecutive

So, Ans 2 UEJKL which have same property.

79. 3
 XZAVT WUESQ TRUPN
 $\frac{26}{2} \frac{24}{2} \frac{20}{2} \frac{20}{2} \frac{23}{2} \frac{21}{2} \frac{19}{2} \frac{17}{2} \frac{20}{2} \frac{18}{2} \frac{16}{2} \frac{17}{2}$
 First two letter have difference of 2 and same as last two letters & middle one is vowel.
 So, Ans LJOHF

80. 2
 BYMN DWJZ GTKP
 All letters are consonants
 So, Ans (2) CXHS

81 – 83

ACTIVE = 91) CEVKXG

A C T I V E = (1) C E V K X G

13 20 9 22 5 $\xrightarrow{+2}$ 3 5 22 11 24 7

A C T I V E = (2) E F V K Y I

1 3 20 9 22 5 5 6 22 11 25 9

$\xrightarrow{+4+3+2+2+3+4}$

A C T I V E = (3) X Z Q F S B

$\xrightarrow{-3/+23}$

1 3 20 1 22 5 24 26 17 6 19 2

$\xrightarrow{2+3+4+5+6+7}$

81. 2
 GOLDEN = KRNFHR
 715124514 1118 146818

$\xrightarrow{+4+3+2+2+3+4}$

82. 3

ORANGE = LOXKDB

151311475 1215241142

$\xrightarrow{-3/+23}$

83. 1

PURPLE = RWTRNG

1621181612518232918147

$\xrightarrow{+2}$

(1)

84. 1

85. 2

86 – 87

 -3

 -4

 -6

 -2

 -9

 -1

 -8

 -5

 -7

86. 3 (2356)

87. 4

88. 3

Letter : A T M G O D N R S

Digits: 9 8 7 6 5 4 3 2 1

Donar = 4 5 3 9 2

Ans .3

89. 3

90. 1

91.

$$88 - 7 = 39 \Rightarrow 88 - (7)^2 = 88 - 49 = 39$$

$$77 - 6 = 41 \Rightarrow 77 - (6)^2 = 77 - 36 = 41$$

$$99 - 25 = 74 \Rightarrow 99 - (5)^2 = 99 - 25 = 74$$

$$\text{So, } 55 - 4 \Rightarrow 55 - (4)^2 = 55 - 16 = 39$$

Ans(2)39

92.

$$8 + 6 = 42 \Rightarrow 8 \times 6 - 6 = 42$$

$$7 + 5 = 30 \Rightarrow 7 \times 5 - 5 = 30$$

$$9 + 3 = 24 \Rightarrow 9 \times 3 - 3 = 24$$

So,

$$6 + 4 = 24 - 4 = 20$$

Ans(2)20

93 – 95

93. 2

94. 3

Sol. Total no. of cubes = 60

cubes have one face coloured = 24

cubes have no face coloured = 8

So, cubes have atleast two faces coloured

$$= 60 - (24 + 8)$$

$$= 60 - 32$$

$$= 28$$

95. 3

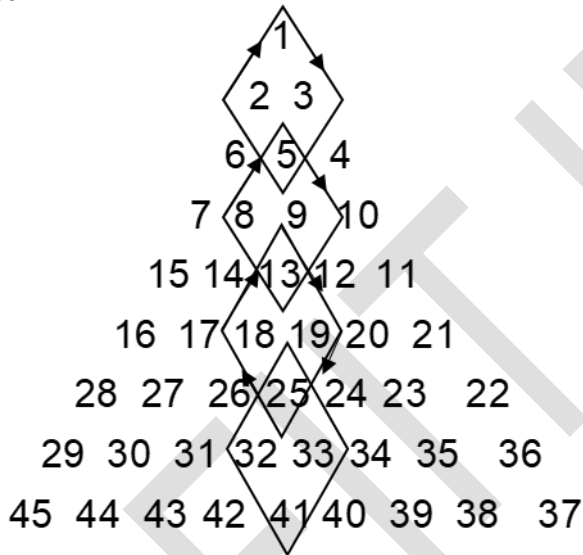
24

96 – 97

96. 2

97. 2

98 – 100



98. 1

1352 : 13 19 25 18 :: 5 9 13 8 :: 25 33 41 32

25334132

99. 163044 : 213538 :: 173143 : 203439

Sol. Rank of digit from left side is equal to rank of digit from right side.

Ans. (2) 20 39 39

100. 28 16 27 : 22 21 23 :: 29 28 30 : 36 22 35

Rank of digit from left side is equal to rank of digit from right side in a same line.

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