
NATIONAL TALENT SEARCH EXAMINATION-2018-19, GUJARAT

MENTAL ABILITY TEST (MAT) HINTS & SOLUTIONS

1.
$$\begin{array}{cccccc} 2 & 3 & 5 & 9 & 17 & 33 \\ 1 & 2 & 4 & 8 & 16 & \end{array}$$
2.
$$\begin{array}{cccccc} 2 & 7 & 12 & 17 & ? & 27 \\ 5 & 5 & 5 & 5 & & \end{array}$$
3. 11, 121, 1331, ?
(A) (11) , $(11)^2$, $(11)^3$, $(11)^4$
4.
$$\begin{array}{cccccc} 656 & 432 & 320 & 264 & 236 & ? \\ -224 & -112 & -56 & -28 & -4 & \\ \div 2 & \div 2 & \div 2 & \div 2 & \div 2 & \end{array}$$
5. 3, 19, 97, 391, ?, 2359
 $3 \times 6 + 1 = 19$
 $19 \times 5 + 2 = 97$
 $97 \times 4 + 3 = 391$
 $391 \times 3 + 4 = 1177$
6. 2, 7, 24, 77, ?
 $2 \times 3 + 1 = 7$
 $7 \times 3 + 3 = 24$
 $24 \times 3 + 5 = 77$
 $77 \times 3 + 7 = 238$
7. 11, 5, 13, 10, 15, 15, 17, ?
 $11 + 2 = 13$
 $13 + 2 = 15$
 $15 + 2 = 17$
 $17 + 2 = 19$

 $5 + 5 = 10$
 $10 + 5 = 15$
 $15 + 5 = 20$
8. 1331, 2197, 4913, 6859, ?, 24389
 $(11)^3$, $(13)^3$, $(17)^3$, $(23)^3$, $(29)^3$
9. 97, 86, 99, 88, 101, ?
 $97 + 2 = 99$
 $99 + 2 = 101$
 $101 + 2 = 103$
Same as

$$86 + 2 = 88$$

$$88 + 2 = 90$$

21. B,F,J,N,R,V,Z,D,H,L , ?
2,6,10,14,18,22,26,4,8,12,16
16 = P

22. (A)
ABC EFG JKL PQ?
D HI MNO

23. (B)
DD jjj PP vvv B?
2 3 2 3 2
Ans. B

- AHL ? CFJ DEI
24. (1,8,12) (2,7,11) (3,6,10) (4,5,9)

- R A M E S H H S E M A
25. 18 1 13 5 19 8 8 19 5 13 1

26. (C)
A C F J O ? B
1 3 6 10 15 ? 2
2 3 4 5 6 7

- 1 4 8 13 19
27. A D H M (?)
3 4 5 6

- 4 9 15 22 30
5 6 7 8
LU – TUPLUBTU – LUBT – P – UBTUP
28. B P U L

29. KM5,IP8,GS11,EV14 ?
K I G E C M P S V Y 5 8 11 14 17
11 9 7 5 3 13 16 19 22 25 +3 +3 +3 +3
-2 -2 -2 -2 +3 +3 +3 +3

Answer : CY17

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30. $A = 1, B = 2, C = 3 \Rightarrow A \times B \times C = 1 \times 2 \times 3 = 6$
 $E = 5, F = 6, G = 7 \Rightarrow E \times F \times G = 5 \times 6 \times 7 = 210$
 $J = 5, J = 6, K = 7 \Rightarrow I \times J \times K = 9 \times 10 \times 11 = 990$
31. Both dots are downwards OR Dots at end
32. All of are Mirror images other than D.
33. Hands & Left are in triangles shape. In option D White not in other options.
34. Other shape has 2 more sides than inner shape but not in C.
35. (A) Curved letter
36. Upper & lower part are different in plane.
37. Wide tube
38. One triangle is not available.
39. Two line segments.
40. All other images are crossing to each other ,. But not in option C.
42. no more food $\longrightarrow$ ta ka da
more then that $\longrightarrow$ sa pa ka
more $\longrightarrow$ ka
that $\longrightarrow$ sa pa ka
43. LAP $\longrightarrow$ KMZBOQ
L $\longrightarrow$ K L M
A $\longrightarrow$ Z A B
P $\longrightarrow$ O P Q
- NOTE $\longrightarrow$? (MONPSUDF)
N $\longrightarrow$ MNO
O $\longrightarrow$ NOP
T $\longrightarrow$ STU
E $\longrightarrow$ DEF
44. $E = 5$
 $E M P I R E = 66$
 $5 + 13 + 16 - 9 + 18 + 5 = 66$
 $REPAJR = 15 + 5 + 16 + 1 - 9 + 18 = 97$
45. SSC $\longrightarrow$ 19193
S $\rightarrow$ 19
S $\rightarrow$ 19
C $\rightarrow$ 3
- BBC $\longrightarrow$ 223

46.

(B)

CHARACTER $\longrightarrow$ 241612376

CHILDREN $\longrightarrow$ 24859670

H = 4, I = 8, R = 6, A = 1, L = 5

HIRALAL $\longrightarrow$ 4861515

47.

A P P L E $\longrightarrow$ E T T P I
1 16 16 12 5 $\longrightarrow$ 5 20 20 16 9

Diff of 4 in each correspond letter

D E L H I $\longrightarrow$ H J P L M
4 5 12 8 9 $\longrightarrow$ 8 9 16 12 13

48.

D O C U M E N T S
4 15 5 21 13 5 14 20 19
 $\downarrow \quad \downarrow \quad \downarrow$ $\longrightarrow$ V D P E N R S M D
Reverse +1 Reverse 22 4 16 5 14 18 19 13 4
with +1 with +1

ADVE R TISE $\longrightarrow$ FWEB S DRHS

49.

A = 1

AND = 19

1 + 14 + 4 = 19

BAT = 2 + 1 + 20 = 23

50.

MEAN = \$57*

DOME = 93\$5

MOAN = \$37*

53.

(D) Sum of digit must be 11.

76.

(B) $24 - 36 \div 12 + 8 \times 4 = 53$

77.

(D) $15 - 8 \times 6 \div 12 + 4$

$15 \times 8 \div 6 + 12 - 4$

$15 \times 8 \times \frac{1}{6} + 12 - 4 = 28$

78.

(A) $14 - 4 \times 17 \div 12 + 8$

$14 \times 4 \div 7 + 12 - 8$

$14 \times 4 \times \frac{1}{7} + 12 - 8 = 12$

79.

(C) $20 + 16 \div 4 - 3 \times 2 = 18$

80.

(B) $15 \div 3 + 24 - 12 \times 2 = 5$

81. (C)

82. (A) Odd days = 2
Monday + 2 = Wednesday

83. (A)
1st Jan – 2000 = Saturday (365 days in between)
31st Dec – 2000 = Sunday
1st Jan 2001 = Monday
(2000 = Leap Year)

84. (A)
Multiple of 400 is a Leap year for country years

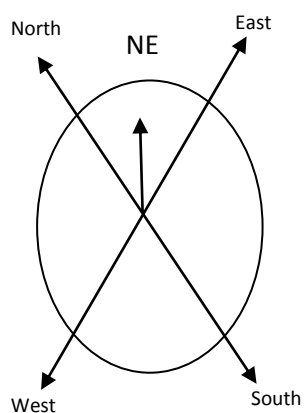
85. (B) R,M,H,K are brother & sisters

86. (A)
$$N^{\ominus} \longrightarrow W^{\oplus}$$
$$\downarrow$$
$$K^{\oplus} \longrightarrow T$$
Maternal uncle

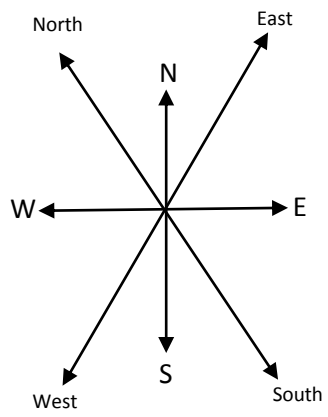
87. (B)
$$N^{\ominus} \quad F^{\oplus}$$
$$\downarrow \quad \downarrow$$
$$x \quad x$$

89. (A)
$$S^+ \leftarrow T \leftrightarrow R^+$$
$$\downarrow \quad \downarrow$$
$$x^+ \rightarrow y^+$$

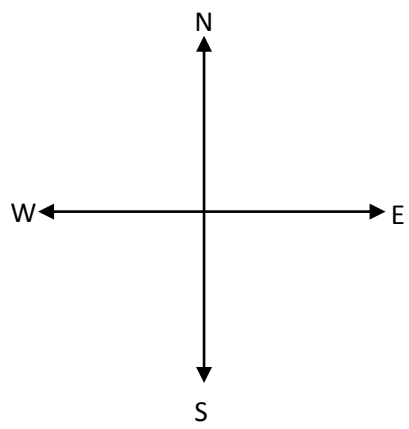
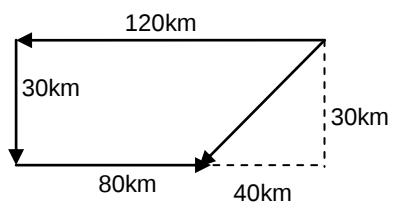
90. (C)



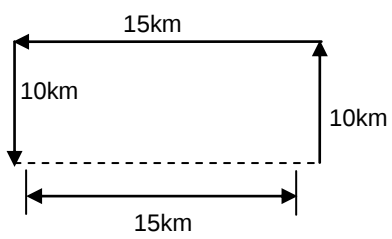
91. (C)



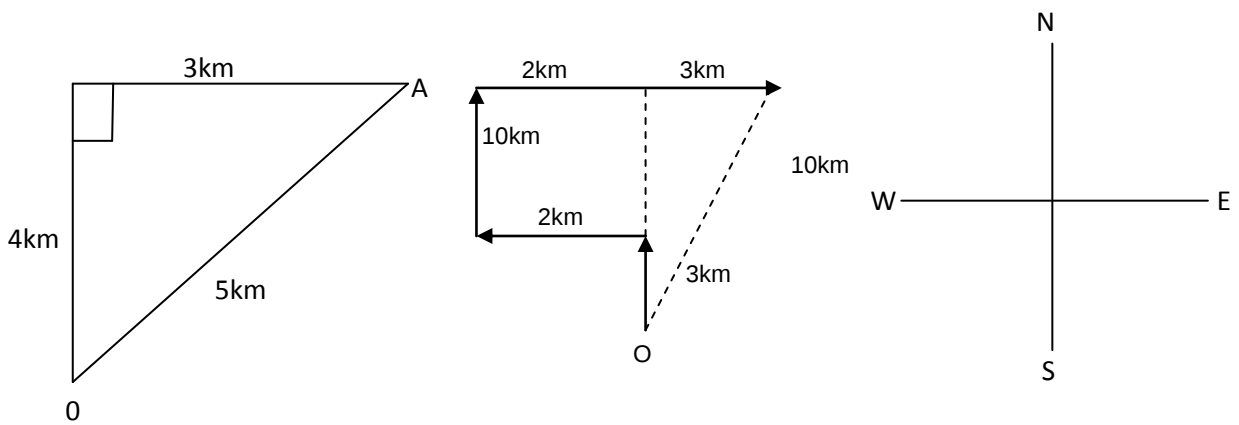
92. (D)



93.



94.



96. (B)

Let Age of A $\rightarrow$ X and B $\rightarrow$ y

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

$$\frac{2}{y}x = y \text{ and } 7x + 35 = 8y + 40$$

On substitution $x = 3$ and $y = 2$

So, $x, y = 5$

97. (C)

Let Age of Suman = Y and Age of Ledcy = x

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

$$X + y = 35 \text{ and}$$

So by Elimination

$$x = 15 \text{ and } y = 20$$

$$\text{So, } y - x = 5$$

98. (C)

Let Father's Age = y

Mother age = z

$$Y = 3x - 8 \text{ and } z = y + 3 = 3x - 8 + 3 = 3x - 5$$

so, If $x = 7$

$$\text{so, } z = 3(7) - 5 = 16$$

99. (A)

Total chances

$$= {}^{12}C_3 = 220$$

100. (A)

$$\frac{n(n+1)}{2} \Rightarrow \frac{15 \times 16}{2} = 15 \times 8 = 120$$

Here $n = 15$

(for first person)