

NATIONAL TALENT SEARCH EXAMINATION 2020-21, STAGE 1

STATE LEVEL EXAMINATION QUESTION BOOKLET

MENTAL ABILITY TEST

MEDIUM : MARATHI WITH ENGLISH VERSION

DATE : 13TH December 2020

Maximum Marks : 100

TIME : 120 Minutes

Read the following instruction carefully before you answer the questions,.

1. Answers are to be bubbled only on the separate carbonless answer-sheet provided to you. After examination detach the carbonless copy from original OMR & keep carbonless copy with you till the declaration of result.
2. Please write your Center Code & Seat No. very clearly (only one digit in one block) on question paper. Before writing your seat no. ascertained it with Hall ticket. Please see that no block is left blank or unfilled.
3. Please ensure that you have received Mental Ability Test answer sheet.
4. Total number of questions are 100 for this paper. All questions carry one mark each.
5. All questions are compulsory.
6. For each question there are four options given in question paper. Check for the correct answer and bubble correct option from four circles given in answer sheet by Black/Blue pen. Please do not write any answers on question papers.
7. Start answering from first question one after the other till last question.
8. If you do not know the answer to any question, do not spend much time on it and pass on to the next one. Time permitting you can come back to the questions which you have left in the first instance and try them again.
9. Utilize the allotted time for solving the questions in best possible way. The rough work is to be done in the box given under each page.
10. Do not write anything except Center Code, Seat No. and rough work anywhere in this booklet.

MAT NTSE-Stage 1

Directions: In each of the following questions there is a specific relationship between the first and second figure. The same relationship exists between the third and fourth figure which will replace the question mark. Select the correct option from the given alternatives.

1. 2
By observation 2.
2. 4
By observation 4.
3. 2 & 3
Bonus recommended.
4. 4
8th letter from left is V.
13th letter from right is H
& V is in the middle of these two to V is
11th from left end. 4

Q. 5 to Q. 8

Directions: Which number will replace the question mark in the given series. Select the correct number from the given alternatives.

5. 2

45	54	45	34	27	17
	23	20	18	17	
	3	2	1		2

6.

$$18 + 30 - (1^3 - 1) = 48$$

$$48 + 30 - (2^3 - 2) = 72$$

$$72 + 48 - (3^3 - 3) = 96$$

$$96 + 72 - (4^3 - 4) = 108$$
 No, option matches. Bonus Recommend.

7. 2
Sum of previous two digit is 3rd number.
Fibonacci series. 2.

8. 1

12	,32	,72	,152	, ?	,632
	20	,40	,80	,160	,320
					1

9. 3
All options are same when rotated except option 3.

10. 4
By observation

11. 2
12. 4
13. 1
3 is opposite to 4 [1]
14. 2
3 and 4 are opposite to each other. [2]
15. 1
 $21^3 + 21^2 = 9702$ [1]
16. 2
Circle is moving 1 place anti clockwise "+" is moving 3 place in same direction moves two place in same direction.
2.
17. 4
Line is adding. [4] in figure.
18. 3

Sunshil	Vipin	Prashant	Amar
Drawing	Music	Drawing	Dance
Moving	Dance	Dance	Craft
Craft		Craft	
19. 3
20. 3
21. 2
 $14 + 14 + 16 + 8 = 52$
22. 1
 $64 - 8 = 56$
23. 1
Only corners can be pointed at most of its faces.
24. 1
By observation
25. 3
By observation
26. 3

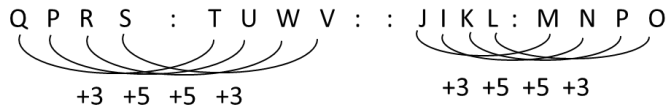
p	_	rsqr	_	_	rs	_	q	_	pqr
pqrs	q	rs	rs	rs	rs	rs	rs	rs	rs
27. 4

abc	bca	cab	abc
bc	ca	ab	bc
28. 3
"21" represent the common part of all three destination that's why 21 is answer.
29. 4

52	+	41	+	46	=	139
MH+KR		MH+RJ		RJ+KR		
30. 2

$$\begin{matrix} 72 & + & 46 & + & 67 & = & 185 \\ \text{Only Rj} & & \text{Rj+Kr} & & \text{only Kr} & & \end{matrix}$$

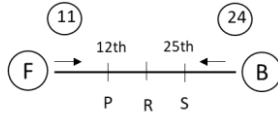
31. 2
Continue letter group.
32. 3
Combination of opposite letters and next letter.
33. 4
 Σ moving 1 place in right side
34. 1
Let most element is eliminating and new elements add at right most place remaining elements shift place towards left side.
35. 3
36. 4
37. 3
38. 3
 $20 + 12 + 12$
39. 1
"O" when will be there with n face painted.
40. 4
Multiply the corner elements with each other i.e., $15 \times 6 \times 4 = 360$ then divided it by 10
 $\therefore 360 \div 10 = 36$ is the middle no.
Q $50 \times 10 \times 10 = 5000 \div 10 = 500$
41. 3
Addition of square [3] not of adjacent Number.
 $25 = 5$
 $64 = 8$
is $144 = 12$
 $96 = 6$
 31
42. 3
E J O T : V Q L G : : B G L Q : S N I D
5|10|15|20 22|17|12|17 2|7|12|17:19|14|9|4
5 5 5 -5 -5 -5 5 5 5
 $\underbrace{\hspace{1.5cm}}_{+2}$ $\underbrace{\hspace{1.5cm}}_{+2}$
43. 4
F J U L : B O Q Q : : L H R X : H M N C
6 10 21 12 2 15 17 17 $\underbrace{\hspace{3cm}}_{-4 +5 -4 +5}$ $\underbrace{\hspace{3cm}}_{-4 +5 -4 +5}$
44. 3



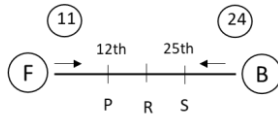
45. 4 By observation

46. 3 By observation

47. 1



48. 2



49. 3

CD⁽⁺⁴⁾ HI⁽⁺⁴⁾ MN⁽⁺⁴⁾ RS
+3 +4 +3 +4

50. 2

RD, PG, MK, 1N, DR
_{18 16 13 9}
-2 -3 -4 -5

51. 4

BM 26, EN 70, HO 120, KP 176.
+3, 1 and (multiplication of) B(2) × (H) = 26
So, option 4 satisfy given.

52. 4

T23C, QG24, 26NL, KP27, ____
28HT – option (2)
-3 -3 -3 -3
T, Q, N, K, H
+4 +5 +4 +5 U
Ans 29 HU

53. 3

By observation.

54. 4

By observation.

55. 1

By observation.

56.

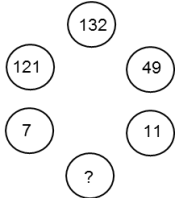
Option incorrect.
North west becomes south, so it has been rotated 135° anticlockwise.
So, east will become north-west.
No option matches.

Bonus recommend

57. 4
By interchanging direction we get answer as option (4! south)
58. 2
(225 + 15) = 240 as per pattern in Question 59.

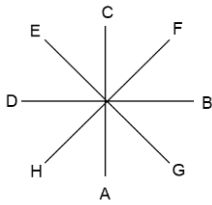
59. 3
As we relate question 58 and 59. the blank should be $8^2 = 64$

60.3

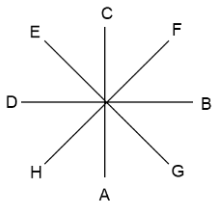


$$(11+7) \times (11-7) = 18 \times 4 = 72(3)$$

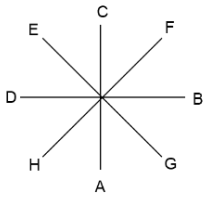
61. 3



62. 2



63. 4



64. 3
 $8 \div 2 = 4, 9 - 3 = 6, 10 \div 4 = 2.5$
So, $7 \div 5 = 1.4$
Pattern is $(8)^2 + (8-2), a^2 + (9-3)$
So, $7^2 + (7-5) = 51(3)$

65. 4
 $9 + 2 = 11, 8 + 3 = 11, 7 + 4 = 11$, so $6 + 5 = 11$
Pattern is
 $9 + (2 \times 2) = 13$
 $8 + (3 \times 3) = 17$
So, $6 + (5 \times 5) = 31$

66. 4
By observation

67. 3
By observation

68. 2

$$\frac{x+20}{7x+20} = \frac{1}{3}$$

$$3x+60 = 7x+20$$

$$40 = 4x \Rightarrow x = 10$$
 Age of Ram: 20 years (2)

69. 3
Age of Shyam after 10 year = 90 years.

70. 2
 78 (20) 82
 37 (12) 59
 45 (1) 91

$$\frac{78+82}{8} = 20$$

$$\Rightarrow \frac{45+91}{8} = \frac{136}{8} = 17(2)$$

71. 1
 95 (53) 87 →
 • First digit of central no. is equal to sum of digits of no. on left side.
 • Second digit of central no. is obtained by dividing the sum of digits on right by 2.
 So, 76 (?) 174 ⇒ (7+6) $\left(\frac{1+7+4}{2}\right)$ ⇒ 46
 Answer, option (1)

72. 4
By observation

73. 2
By observation

74. 4
 GECA, ZXUT, SQOM
 -2, -2, -2, -2 in each term
 So, option 4 satisfies the condition.

75. 1
 BEIN, EHLQ, ILPU,
 +3, +4, +5, +6 in each term.
 So, option (1) satisfy given condition.

76. 3
 BYEV, DWHS, IRLO, _____
 opposite of letters.
 i.e., B – Y, E – V (opposite)
 So, Option (3) satisfy the given condition.

77. 4
Option (4) by observation.

78. 4
Option (4) by observations.
79. 1
By observation
80. 4
By observation
81. 3
Basic
(i) EDVLF
(ii) CISAB
(iii) YASIZ
(iv) BZRHC
1. Code (+3) in each position.
 2. Code reversing the order.
 3. (first and last) -3 middle there same.
 4. Code first, last - same middle - (-1).
So, far Question
82. 4
Basic
(i) EDVLF
(ii) CISAB
(iii) YASIZ
(iv) BZRHC
1. Code (+3) in each position.
 2. Code reversing the order.
 3. (first and last) -3 middle there same.
 4. Code first, last - same middle - (-1).
So, far Question
83. 1
Basic
(i) EDVLF
(ii) CISAB
(iii) YASIZ
(iv) BZRHC
1. Code (+3) in each position.
 2. Code reversing the order.
 3. (first and last) -3 middle there same.
 4. Code first, last - same middle - (-1).
So, far Question
84. 3
In a certain code language if

$$\begin{aligned}
 @ \times \star &= 45 \\
 \smile \times \text{flag} &= 48 \\
 \text{flag} \times \star &= 40 \\
 \# \times @ &= 27 \\
 \text{By observing } @ &= 9 \\
 \star &= 5 \\
 \text{flag} &= 8 \\
 \smile &= 6 \\
 \# &= 3 \\
 \text{So, } \# &= 3
 \end{aligned}$$

85. 2

$$\begin{aligned}
 \downarrow\uparrow\downarrow @ \downarrow\uparrow\downarrow\uparrow\downarrow \$ \downarrow\uparrow\downarrow e \downarrow\uparrow \# \downarrow\uparrow\downarrow\uparrow\downarrow &= ? \\
 8 \times 12 - 8 \div 4 + 12 & \\
 8 \times 12 - 2 + 12 & \\
 = 106 - (2) &
 \end{aligned}$$

86. 2

By observation

87. 2

$$\begin{array}{cccc}
 \begin{array}{c} +4 \\ \curvearrowright \\ 416 \\ \curvearrowleft \\ +4^2 \end{array} & , & \begin{array}{c} +1 \\ \curvearrowright \\ 525 \\ \curvearrowleft \\ +5^2 \end{array} & , & \begin{array}{c} +1 \\ \curvearrowright \\ 749 \\ \curvearrowleft \\ +7^2 \end{array} & , & \begin{array}{c} +1 \\ \curvearrowright \\ 864 \\ \curvearrowleft \\ +8^2 \end{array}
 \end{array}$$

88. 1

Given numbers have 3 as their integer part.

89. 2

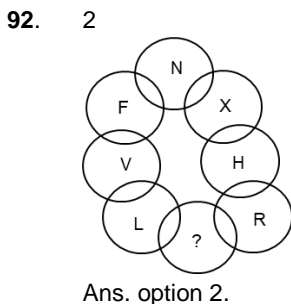
By observation.

90. 4

91. 3

JN 28 27 GP
 CE 12 45 TU
 LR ? ? MS

The patten is like.

$$\begin{aligned}
 (12) + (18) + 4 & \\
 \text{position of (L)} + \text{Positionof(R)} + 4 &= 34 \\
 M + S = 13 + 19 + 4 &= 36.
 \end{aligned}$$


93. 2
635104 is written as
⊗ ∪ # 卐 ⊕ ▽
94. 4
\$ # 卐 △ ∪ ▽ - 9 5 1 8 7 4
95. 2
So, code far PREAK = 16389
Coder far R = 6, E = 3, T = 2, N = 5.
96. 3
Coder far R = 6, E = 3, T = 2, N = 5.
5 4 2 6 8 7 - N U T R A L
97. 2
Direct coding
ZODIAC - 034519
98. 1
By observations
99. 3
By observations
100. 2
By observations

FIITJEE