NTSE – NOV, 2018

MEDIUM: Telugu

MENTAL ABILITY TEST

Q. Booklet No. 158781

Paper – I

Allowed: 120 Minutes

Total Questions: 100

Maximum Marks: 100

INSTRUCTIONS: Please check that OMR Answer Sheet No. and Question Booklet No. match with each other. If they do not match immediately replace the Question Booklet and OMR Answer Sheet. Candidate should fill the correction Booklet No. in OMR Answer Sheet.

Instructions to Candidates

Read the following instructions carefully before you answer the questions. Answers are to be SHADED on SEPARATE OMR Answer sheet given, with a HB pencil. Read the Instructions printed on the OMR sheet carefully before answering the questions.

Please write your Hall Ticket No. very clearly (only one digit in one block) on the OMR Answer sheet as given in your admission card. Please see that no block is left unfilled and even Zeros are correctly transferred to the appropriate blocks on the OMR Answer sheet. For all the subsequent purposes, your Centre Code No. and other details shall remain the same as given on the Admission Card.

Paper I (Mental Ability Test) consists of 100 questions (Q. Nos. 1 to 100).

All questions carry one mark each.

Since all questions are compulsory, do not try to read through the whole question paper before beginning to answer it.

Begin with the first question and keep trying one question after another till you finish all the questions.

If you do not know the answer to any question, do not spend much time on it and pass on to the next one. If time permits, you can come back to the questions which you have left in the first instance and try them again.

Since the time allotted to the question paper is very limited, you should make the best use of it by not spending too much time on any question.

Blank pages are provided for rough work at the end of question paper.

1. REMEMBER YOU HAVE TO SHADE ANSWERS ON A SEPARATE OMR ANSWER SHEET PROVIDED.

Answer to each question is to be indicated by SHADING the circle having the number of the correct alternative in the OMR Answer sheet from among the ones given for the corresponding question in the booklet.

1. Now turn to the next page and start answering the questions.

2. The OMR Answer sheet consists of two copies, the ORIGINAL COPY and the CANDIDATE'S COPY. Do not separate or displace them. Do not darken the bubbles in two copies of OMR Answer sheets separately. After the examination, you should hand over the original copy of OMR Answer sheet to the invigilator of the room and can take away the Candidate's copy of OMR Answer Sheet with them.

3. The candidate need not return this Question Paper booklet and can take it after completion of the examination. No candidate should leave the examination hall before the end of the examination.
PAPER I
MENTAL ABILITY TEST
(Q. Nos. 1 to 100)
Max. Marks : 100

Note: SHADE the correct alternatives in the OMR Answer Sheet provided, from amongst the ones given against the corresponding questions in the Question Booklet. For shading the circles, use a HB pencil.

1. अलगक्रम: वर्णालिका: ______ : अक्षर
   (1) अ (2) ध (3) इ (4) ऎ

2. इंग्रजी (अंक): संख्याक्रम: ______ : संख्याक्रम
   (1) 1 (2) 2 (3) 3 (4) 4
   (4) इंग्रजी (क्रमबद्धता)

3. AEZ : EY : : IOX : ______
   (1) LYZ (2) AEX (3) OJW (4) EXI

4. AJT : BKU : ______ : DMW
   (1) EHF (2) CVL (3) ELY (4) ENO

5. AZY : EXW : : IVU : ______
   (1) OTS (2) OST (3) STO (4) TSO

6. AKR : BGL : ______ : EJQ
   (1) PUZ (2) DIA (3) DHL (4) SXZ

7. यथार्थता: ______ : दूरी ध्यान दिया: हृदय
   (1) अनुभव (2) दूरी ध्यान नहीं (3) दूरी ध्यान (4) अनुभव

8. ______ : विद्युत गतिता : दूरी : रंग
   (1) लाल (2) हल (3) गल (4) बल

9. ______ : विद्युत गतिता : दूरी : रंग
   (1) लाल (2) हल (3) गल (4) बल

10. ______ : विद्युत गतिता : दूरी : रंग
    (1) लाल (2) हल (3) गल (4) बल

Direction: In Question nos. 11 to 20:

11. Problem Figures:
    (A) (B) (C) (D)
    (1) (2) (3) (4)

12. Problem Figures:
    (A) (B) (C) (D)
    (1) (2) (3) (4)
Instructions to Candidates

Read the following instructions carefully before you answer the questions. Answers are to be SHADED on a SEPARATE OMR Answer sheet given, with a HB pencil. Read the instructions printed on the OMR sheet carefully before answering the questions.

Please write your Hall Ticket No. very clearly (only one digit in one block) on the OMR Answer sheet as given in your admission card. Please see that no block is left unfilled and even Zeros are correctly transferred to the appropriate blocks on the OMR Answer sheet. For all the subsequent purposes, your Centre Code No. and other details shall remain the same as given on the Admission Card.

Paper-II (Scholastic Aptitude Test) consists of 100 questions (Q. Nos. 1 to 100).

All questions carry one mark each.

Since all questions are compulsory, do not try to read through the whole question paper before beginning to answer it.

Begin with the first question and keep trying one question after another till you finish all the questions.

If you do not know the answer to any question, do not spend much time on it and pass on to the next one. If time permits, you can come back to the questions which you have left in the first instance and try them again.

Since the time allotted to the question paper is very limited, you should make the best use of it by not spending too much time on any question.

Blank pages are provided for rough work at the end of question paper.

REMEMBER YOU HAVE TO SHADE ANSWERS ON A SEPARATE OMR ANSWER SHEET PROVIDED.

0. Answer to each question is to be indicated by SHADING the circle having the number of the correct alternative in the OMR Answer sheet from among the ones given for the corresponding question in the booklet.

1. Now turn to the next page and start answering the questions.

2. The OMR Answer sheet consists of two copies, the ORIGINAL COPY and the CANDIDATE'S COPY. Do not separate or displace them. Do not darken the bubbles in two copies of OMR Answer sheets separately. After the examination, you should hand over the original copy of OMR Answer sheet to the invigilator of the room and can take away the Candidate's copy of OMR Answer Sheet with them.

3. The candidate need not return this Question Paper booklet and can take it after completion of the examination. No candidate should leave the examination hall before the end of the examination.
Note:
(i) Subjects, Total Questions of each subject and Marks allotted:
- Physics: 13 Questions, 13 Marks
- Chemistry: 13 Questions, 13 Marks
- Biology: 14 Questions, 14 Marks
- Mathematics: 20 Questions, 20 Marks
- History: 12 Questions, 12 Marks
- Geography: 12 Questions, 12 Marks
- Political Science: 08 Questions, 08 Marks
- Economics: 08 Questions, 08 Marks

(ii) SHADE the correct alternatives in the OMR Answer Sheet provided, from amongst the ones given against the corresponding questions in the Question Booklet. For shading the circles, use a HB pencil.
MATHEMATICS

13. \( f(x) = x^2 - 8x + k \) is a real valued function. If \( f(4) = 12 \), then find \( k \).
   (A) 6  (B) 12  (C) 36  (D) 49

14. If \( A \) and \( B \) are two matrices of the same order, then \( AB = BA \).
   (A) True  (B) False

15. \( \frac{x + 1}{2} + \frac{y - 1}{3} = 8, \quad \frac{x - 1}{3} + \frac{y + 1}{2} = 9 \) solve \( x, y \).
   (A) 13  (B) 7  (C) 8  (D) 12

16. If \( 2 \) is a zero of the function \( f(x) = x^2 - 2ax + b \), then \( 9a - 2b = 9 \).
   (A) 35.1  (B) 53.1  (C) 51.3  (D) 31.5

17. The value of a is 4. The value of \( x \) is 20. The value of \( y \) is 120. Which of the following is correct?
   (A) 8, 10, 12, 14  (B) 6, 8, 10, 12
   (C) 4, 6, 8, 10  (D) 2, 4, 6, 8

18. \( (b + c)x^2 + (c - a)x + (a - b) = 0 \) is always zero.
   (A) \( a + c = \frac{b}{x} \)  (B) \( a + c = \frac{b}{x} \)
   (C) 1  (D) 4

19. \( (k + 3)x^2 - (5-k)x + 1 = 0 \) has real roots.
   (A) \( k < 1 \)  (B) \( k > 13 \)  (C) \( k < 13 \)  (D) \( k > 13 \)
23. \[3(\sin x - \cos x)^{1} + 6(\sin x + \cos x)^{0} + 4(\sin^{6} x - \cos^{6} x) = \]

(a) 7  
(b) 14  
(c) 9  
(d) 13

24. The coordinates of (a, 0), (0, b) and (1, 1) are given by

\[
\frac{1}{a} = \frac{1}{b}
\]

(a) 3  
(b) 4  
(c) 2  
(d) 1

25. \[a^{x} = b^{y^{2}} \text{ where}\]

(a) \[\log a = \frac{y+z}{x} \]  
(b) \[\log b = \frac{x}{y+z} \]  
(c) \[\log a = \frac{x}{y} \]  
(d) \[\log b = \frac{y+z}{x} \]

26. \[a^{x-1} = bc, b^{y-1} = ca, c^{z-1} = ab \text{ where}\]

\[xy + yz + zx\]

(a) 0  
(b) 1  
(c) \[\frac{1}{x} - \frac{1}{y} \]  
(d) \[xyz\]

27. \[x^{3} - 23x^{2} + 142x - 120 = 0 \text{ where}\]

(a) \(x - 4\)  
(b) \(x - 1\)  
(c) \(x + 10\)  
(d) \(x + 12\)

28. \(\text{n is a positive integer such that}\)

(a) \(n \text{ is odd}\)  
(b) \(\frac{n+1}{2}\)  
(c) \(\frac{n+1}{2}\)  
(d) \(\frac{n-1}{2}\)

29. \(a, b, c \text{ are not all zero such that}\ ax + by + c = 0 \text{ where}\)

\(a(x + y) + b = c\)

(a) (1, 2)  
(b) (2, -1)  
(c) (1, -2)  
(d) (-1, -2)

30. \((x^{2} - x) = \lambda(2x - 1) \text{ where}\)

\(\lambda = \frac{1}{2}\)

(a) 1  
(b) \(-\frac{1}{2}\)  
(c) 2  
(d) -2

31. \[\cosec \theta - \sin \theta = 4 \text{ where}\]

\(\sin^{2} \theta + \cosec^{2} \theta = \)

(a) 13  
(b) 4  
(c) 16  
(d) 8
POLITICAL SCIENCE
41. Which element has the electron configuration 1s² 2s² 2p⁶ 3s² 3p⁶ 3d¹⁰? (a) K (b) Ca (c) Zn (d) Ba

42. A compound has the formula CH₄. What is its molecular geometry? (a) Tetrahedral (b) Linear (c) Bent (d) Trigonal planar

43. The balanced equation for the reaction of CuO with H₂ to form Cu and H₂O is CuO + H₂ → Cu + H₂O. What is the volume of H₂ required to react with 2 g of CuO at STP? (a) 2.24 L (b) 22.4 L (c) 2.24 mL (d) 22.4 mL

44. Which of the following molecules have sp³ hybridization? (a) CH₄ (b) NH₃ (c) BF₃ (d) CO₂

45. What is the product of the reaction between CO₂ and H₂? (a) CH₄ (b) H₂O (c) CO (d) N₂

46. The electron configuration of an atom is 1s² 2s² 2p⁶ 3s² 3p⁶ 3d¹⁰ 4s¹. What is the element? (a) Na (b) K (c) Ca (d) Sr

47. What is the noble gas configuration for Ar? (a) [Ar] (b) [Kr] (c) [Xe] (d) [Rn]

48. What is the Lewis structure of H₂O? (a) O-H₂ (b) H₂O (c) H₂-O⁻ (d) O⁻H₂

49. Which of the following ions has the largest radius? (a) F⁻ (b) Na⁺ (c) Al³⁺ (d) Cr²⁺

50. What is the mass percentage of oxygen in CO₂? (a) 28% (b) 44% (c) 52% (d) 78%
60. Social exclusion occurs when an individual or a group is systematically deprived of opportunities or rights, typically because of social, economic, or political reasons. Define social exclusion. (social exclusion)

61. Social exclusion occurs when an individual or a group is systematically deprived of opportunities or rights, typically because of social, economic, or political reasons. Name the social problem related to social exclusion. (Social exclusion)

62. Identify the following statements. (A) 'A' is the correct answer. (B) B is the correct answer. (C) Both 'A' and 'B' are correct answers. (D) None of the above.

63. Of the following, which is correct? (4) A is the correct answer. (B) B is the correct answer. (C) Both 'A' and 'B' are correct answers. (D) None of the above.
74. If $V_1$, $V_2$ are voltages across two resistors $3$ and $2$ respectively, the voltage across $3$ when $V_1 = 10$ volts and $V_2 = 2.5$ volts is ________.

(1) 18
(2) 10
(3) 15
(4) 12

75. The volume of air is 1000 m$^3$ and its temperature is 0°C. The number of microorganisms in 1000 m$^3$ of air is ________.

(1) 30 dB
(2) 1000 dB
(3) 3 dB
(4) 10 dB

76. A bullet is fired with a velocity $-10$ m/s from a fixed point. The point of impact on the ground is 100 m away from the point of firing. The time of flight of the bullet is ________.

(1) [Graph 1]
(2) [Graph 2]
(3) [Graph 3]
(4) [Graph 4]

77. The acceleration of a car is given by $a(t) = 2t$ m/s$^2$. The velocity of the car after 2 seconds is ________.

(1) $v = 10$ m/s
(2) $v = 6$ m/s
(3) $v = 8$ m/s
(4) $v = 4$ m/s

78. The area under the curve of a force $F = 3x$ N/m from $x = 0$ to $x = 2$ m is ________.

(1) $12$ m$^2$
(2) $8$ m$^2$
(3) $4$ m$^2$
(4) $6$ m$^2$

79. The moment of inertia of a cylinder is given by $I = Mr^2$. The moment of inertia of a cylinder with a mass $M = 10$ kg and radius $r = 2$ m is ________.

(1) $20$ kg$m^2$
(2) $40$ kg$m^2$
(3) $80$ kg$m^2$
(4) $160$ kg$m^2$

80. The current in a circuit is given by $I = 3$ A. The power dissipated in a resistor is $P = 9$ W. The voltage across the resistor is ________.

(1) $V = 3$ V
(2) $V = 9$ V
(3) $V = 27$ V
(4) $V = 81$ V

81. The value of $n$ in the equation $n^2 = 16$ is ________.

(1) $n = 4$
(2) $n = -4$
(3) $n = 8$
(4) $n = -8$

82. The density of a substance is given by $\rho = \frac{m}{V}$. The density of a substance with a mass $m = 10$ kg and volume $V = 2$ m$^3$ is ________.

(1) $5$ kg/m$^3$
(2) $10$ kg/m$^3$
(3) $20$ kg/m$^3$
(4) $40$ kg/m$^3$
85. మూడు విశేష సమాచారాలను తెలియండేందుకు మూడు విశేషాలను హెచ్చారు:

ప్రశ్న 1  
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<td>(iii) ప్రతిపాదించి</td>
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ప్రశ్న 2  
| (a) అంధ  | (b) బొయ్య  | (c) సర్వప్రతిపాదించి  | (d) సర్వప్రతిపాదించి  |

87. ఎలాంటి విద్యార్థుడు దానిని ప్రతిపాదించారు?

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88. కోసం అధ్యాపిను దానిని ప్రతిపాదించాడు లభించారు?

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90. ఎంపికలు లేదు కావు కార్యాలు తెలియండి?

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