

NTSE STAGE – 1 (2016) (STATE OF M.P.)

SENT – 10

ANSWERS KEYS

PART-I MENTAL ABILITY(MAT)

- 1.(D) 2. (C) 3. (D) 4. (D) 5. (A) 6. (D) 7. (D) 8. (A) 9. (B) 10. (D) 11. (C) 12. (D)
13. (B) 14. (A) 15. (B) 16. (D) 17. (D) 18. (B) 19. (B) 20. (C) 21.(D) 22. (C) 23. (A) 24.(C)
25. (D) 26. (D) 27. (C) 28. (C) 29. (B) 30. (D) 31. (A) 32. (C) 33. (B) 34. (A) 35. (B) 36. (B)
37. (A,D) 38. (A) 39. (C) 40. (C) 41. (D) 42. (C) 43. (D) 44. (C) 45. (A) 46. (A) 47. (D) 48. (C)
49. (D) 50. (C)

PART-II (SAT)

PHYSICS

1. (A) 2. (B) 3. (A) 4. (NO OPTION IS MATCHING) 5. (A) 6. (B) 7. (B) 8. (D) 9. (C)
10. (D) 11. (B) 12. (A) 13. (C)

CHEMISTRY

14. (A) 15. (C) 16. (C) 17. (B) 18. (C) 19. (A) 20. (D) 21. (A) 22. (C) 23. (B) 24. (A)
25. (B) 26. (A)

BIOLOGY

27. (A) 28. (C) 29. (A) 30. (B) 31. (D) 32. (B) 33. (C) 34. (C) 35. (A) 36. (A) 37. (C)
38. (A) 39. (C) 40. (B)

HISTORY

41. (B) 42. (B) 43. (B) 44. (C) 45. (B) 46. (A) 47. (A) 48. (D) 49. (C) 50. (C) 51. (B)
52. (D) 53. (C) 54. (A) 55. (C)

GEOGRAPHY

56. (D) 57. (B) 58. (A) 59. (B) 60. (A) 61. (A) 62. (B) 63. (A) 64. (B) 65. (B) 66. (D)
67. (B) 68. (D) 69. (B) 70. (C)

CIVICS

71. (C) 72. (B) 73. (B) 74. (A) 75. (C)

ECONOMICS

76. (D) 77. (C) 78. (C) 79. (B) 80. (D)

MATHEMATICS

81. (B) 82. (B) 83. (C) 84. (No option matching/bonus) 85. (A) 86. (C) 87. (A) 88. (D) 89. (D) 90.
(D)
91. (C) 92. (B) 93. (C)
94. (A,C) 95. (A) 96. (B) 97. (C) 98. (D) 99. (D) 100. (B)

SOLUTIONS

MAT :

1. 36, **30**, 24, 18, 12
Hint : Difference of -6 in each step.
2. 1, 1, 4, 8, 9, 27, 16, 64, 25, **125**
Hint : Alternate series.
3. 3, 5, 8, 13, 21, **34**, 55
3+5=8
8+13=21
13+21=34
4. 80, 78, 75, 71, **66**
Hint : Successive difference of -2, -3, -4, -5
5. 2, 7, 17, 32, 52, **77**
Hint : Difference in each step of 5, 10, 15, 20, 25
6. BEGK:ADFJ::
Hint : Difference in each letter is one.

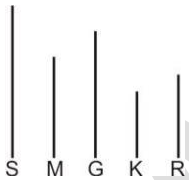
7. A B C D : NPRT
 +13 +14 +15 +16

8. Opposite Letters

9. a C E : b d F :: f h J : ?
 +1 +1 +1

19. 90 / 7 (remainder = 6 so it will be Saturday)

23.



24.



33. F I O
 6 9 15
 So E M R
 5 13 18

34. 9+2² =13
13+3² =22
22+4² =38

35. √4 √9 236
 √16 √25 4 5 20

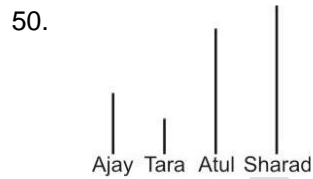
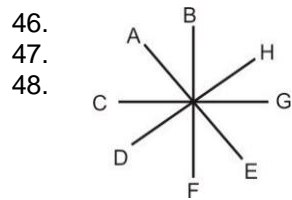
40. Difference of 1, 2, 3, 4, 5, 6, 7

41. Difference of 10, 20, 40, 80, 160

43. $2^2=4$
 $3^2=9$
 $4^2=16$
 $5^2=25$

44. 1 1 2
3 3 6
3 3 3 9
2 6 9 17

45. 26 12 312
 $\frac{312}{3} = 104$
104 8f 8in



PHYSICS :

1. A
Req $\frac{2}{2} \frac{2}{2}$
Req 1

2. B

3. A
10 VSD 8MSD
1VSD $\frac{8}{10}$ MSD 0.8MSD
LC 1MSD 1VSD
1 0.8 0.2mm

4. $S_n = u \frac{a}{2}(2n - 1)$

$$5. \quad \frac{c}{5} = \frac{F}{9} = \frac{32}{9}$$

$$\frac{x}{5} = \frac{x}{9} = \frac{32}{9}$$

$$9x = 5x + 160$$

$$x = 40$$

6. Total distance = $x + x = 2x$
 Total time = $t_1 + t_2$

$$\frac{x}{50} + \frac{x}{150}$$

$$\text{Av. Speed} = \frac{\text{Total distance}}{\text{Total time}} = \frac{2x}{\frac{x}{50} + \frac{x}{150}} = 75 \text{ km/h}$$

7. Latitude of that place

8. $R_s > R_1$ and $R_P + R_3$

9. Mars – Jupiter

10. D

11. B

12. A

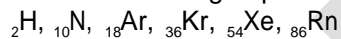
High resistance low melting point

13. C

CHEMISTRY :

14. Elements of same group have similar valence shell configuration

15. Elements of zero group are inert gases and these are



16. Covalent compounds are generally bad conductor of electricity

17. B

18. CH_2O HCHO = Formaldehyde

CH_3COOH = Acetic acid

$\text{C}_6\text{H}_{12}\text{O}_6$ = Glucose/Fructose

$\text{C}_{12}\text{H}_{22}\text{O}_{11}$ = Sucrose

19. A

20. D

21. A

22. C

23. B

24. A

25. B

26. A

MATHS

81. $\cot a = 9/40$
 $\text{Cosec } A = 41/40$

82. $\sin c = 5/13$

83. $(\sec a - 1)(1 - \sin a)$

$$\frac{1 - \sin^2 \theta}{\cos \theta} = \cos \theta$$

$$\frac{1 - \sin^2 \theta}{\cos \theta} = \cos \theta$$

84. $\tan \frac{1}{\sqrt{3}}$

$$\frac{\cos^2 \theta \sec^2 \theta}{\cos^2 \theta \sec^2 \theta} = \frac{4 \cdot \frac{4}{3}}{4 \cdot \frac{4}{3}} = \frac{16}{16} = 1$$

(Hence Bonus because NO option Matched)

85. $3x^2 - 2x - K = 0$

D = 0

$412K = 0$

$12K = 4$

$K = \frac{1}{3}$

86. $(x - 5)(x - 8) = 30$

$x^2 - 8x - 5x + 40 = 30 + 0$

$x^2 - 13x + 10 = 0$

$(x - 10)(x - 7) = 0$

$X = 7$

87. $2x^2 - 3x - x = 96$

$x^2 - 64 = 0$

$x = 8$

$3x = 24$

88. $P(E) = \frac{2}{7}$

89. $N(S) = 52$

For event = ${}^{12}C_1 = 12$

$P(E) = \frac{{}^{12}C_1}{{}^{52}C_1} = \frac{12}{52}$

90. Breadth = x Length

$= x + 23 \quad 2(x + 23) +$

$2x = 206 \quad 4x = 160$

$x = 40$

Breadth = 40

Length = 63

Area = 2520

91. $6a^2 - 864 = a^3$

$2 - 144 = a^3$

12

Volume = $a^3 = 1728$

92. Longest Pole = Diagonal Length

$a^2 + b^2 + c^2 = \sqrt{289} = 17$

93. Coordinate of point on x-axis = (x, 0)

$$|AB| = |AC|$$

$$(7-x)^2 + 6^2 = (3-x)^2 + 4^2 + 20x =$$

$$60$$

$$x = 3$$

$$A:(3,0)$$

94. $|AB| = \sqrt{5^2 + 3^2}$

$$= \sqrt{34}$$

$$|BC| = \sqrt{64 + 4}$$

$$\sqrt{68}$$

$$|CA| = \sqrt{9 + 25}$$

$$\sqrt{34}$$

$$|AB| = |CA|$$

$$\text{isosceles } \triangle ABC$$

$$68 = 34 = 34 = 68$$

Right angled

95. Let divides in K : 1 ratio

$$3K:40$$

$$K = \frac{4}{3}$$

96. B

97. C

98. $CP = x$

$$SP = \frac{3}{2}x$$

$$\% \text{Profit} = \frac{\frac{3}{2}x - x}{x} \times 100 = 50\%$$

99. Let A's cost price = x

$$\text{B's cost price} = \frac{120x}{100} = \frac{6}{5}x$$

$$\text{C's cost price} = \frac{120x}{100} = \frac{25}{100}$$

$$\frac{120}{100} = \frac{5}{4}x$$

$$\frac{3}{2}x$$

$$\frac{3}{2}x = 225$$

$$x = \frac{450}{3} = 150$$

$$x = 150$$

100. h = 14cm²

$$2r = 264$$

$$r = 132$$

$$\text{Volume} = r^2h$$

$$\frac{22}{7} \times 9 \times 14 = 396 \text{ cm}^3$$

PRASHNOTTAR