

National Talent Search (First Level) Scholarship Examination, 2013
(For Student Studying in Class - 10)
Scholastic Aptitude Test

Part – II

18-11-2012

Time : 90 minutes

Max. Marks : 90

Instructions :

There are 90 questions belong to the following subjects :

1. Physics : (S.No. 1 to 12) – 12 questions
2. Chemistry : (S.No. 13 to 23) – 11 questions
3. Biology : (S.No. 24 to 35) – 12 questions
4. Mathematics : (S.No. 36 to 55) – 20 questions
5. History : (S.No. 56 to 65) – 10 questions
6. Geography : (S.No. 66 to 75) – 10 questions
7. Political Science : (S.No. 76 to 85) – 10 questions
8. Economics : (S.No. 86 to 90) – 5 questions

1. Which is not the unit of Force -

- (1) Poundal (2) Dyne (3) Joule (4) Newton

Ans. [3]

2. The expansion of a solid body depends on -

- (1) Mass of the solid only (2) Nature of the solid only
 (3) Temperature of the solid only (4) Nature and temperature of the solid

Ans. [4]

3. Which country is called the country of Wind mills ?

- (1) Holland (2) Britain
 (3) India (4) America

Ans. [1]

4. Who was the first President of Atomic energy commission in India -

- (1) Homi Jahangir Bhabha (2) Vikram Sarabhai
 (3) Prof. M.S. Swaminathan (4) Prof. Meghnad Saha

Ans. [1]

5. The particles of the medium in the transverse wave move -
- (1) Circular Motion (form) (2) Oval form
(3) In direction of the wave motion (4) Perpendicular to the direction of the wave motion

Ans. [4]

6. The Lens used in the Camera is -
- (1) Convex Lens (2) Concave Lens
(3) Biconvex Lens (4) Biconcave Lens

Ans. [1, 3]

Lens use in camera is generally biconvex it is a type of convex lens (converging lens). So both options are correct.

7. Velocity of sound is maximum in -
- (1) Water (2) Oil (3) Air (4) Iron

Ans. [4]

8. One Volt is equal to -
- (1) 1 Joule (2) 1 Newton/Coulomb
(3) 1 Joule/Coulomb (4) 1 Coulomb/Newton

Ans. [3]

Sol. $W = QV$

9. On a bulb is written 220 Volt and 60 watt. Find out the resistance of the bulb and the value of the current flowing through it -
- (1) 806.66 ohm and 0.27 ampere (2) 500 ohm and 2 ampere
(3) 200 ohm and 4 ampere (4) 100 ohm and 1 ampere

Ans. [1]

Sol. $P = \frac{V^2}{R}$

$$60 = \frac{220 \times 220}{R}$$

$$R = \frac{220 \times 220}{60} = 806.66 \Omega$$

$$P = VI$$

$$I = \frac{60}{220}$$

$$I = 0.2727 \text{ Ampere}$$

10. The maximum attraction in a magnet is -

- (1) In the centre (2) On the sides
(3) On the poles (4) On the surface

Ans. [3]

11. The unit of frequency is -

- (1) Hertz (2) Joule
(3) Ohm (4) Kilo Calorie

Ans. [1]

12. The first Astronaut in space was -

- (1) H.G. Wales (2) Neel Armstrong
(3) Uri Gagarin (4) Robert Godai

Ans. [3]

13. Boiling point of Water is -

- (1) 273°K (2) 0°K (3) 373°K (4) 100°K

Ans. [3]

14. The Process by which a mixture of Sodium Chloride and Ammonium Chloride can be separated, is called -

- (1) Sublimation (2) Chromatography
(3) Evaporation (4) Distillation

Ans. [1]

15. The formula of Ammonium Sulphate is -

- (1) NH_4SO_4 (2) $(\text{NH}_4)_2\text{SO}_4$ (3) $\text{NH}_4(\text{SO}_4)_2$ (4) $\text{NH}_4(\text{SO}_4)_3$

Ans. [2]

16. Isotopes of an element have -

- (1) Same Physical Properties (2) Different Chemical Properties
(3) Different No. of Neutrons (4) Different Atomic Number

Ans. [3]

17. A Brown and bright element "x" when heated in presence of air turns in to black substance "y". If hydrogen gas is passed over this heating material again "x" is obtained "x" and "y" are -

- (1) Cu and CuO (2) S and SO_2 (3) C and CO_2 (4) Na and NaH

Ans. [1]

18. P_H of any neutral solution is -

- (1) 0 (2) 1 (3) 14 (4) 7

Ans. [4]

19. An non metal, which is found in liquid state is -

- (1) Bromine (2) Iodine (3) Oxygen (4) Carbon

Ans. [1]

20. The P_H of a solution which turns red litmus Blue will be -

- (1) 1 (2) 9 (3) 4 (4) 5

Ans. [2]

21. Which of the following is correct electronic configuration of Argon -

- (1) 2, 8 (2) 2, 8, 8 (3) 2, 8, 1 (4) 8, 2, 8

Ans. [2]

22. Element "x" which is solid and having high melting point, form a Chloride " $x Cl_3$ ". This element "x" would be in which group of Periodic table -

- (1) Na (2) Mg (3) Al (4) Si

Ans. [3]

23. Methane with the Molecular formula " CH_4 " has -

- (1) 4 Covalent bonds (2) 8 Covalent bonds
(3) 6 Covalent bonds (4) 2 Covalent bonds

Ans. [1]

24. Cell organelle which differentiates plant cell from animal cell is -

- (1) Cell Membrane (2) Plastids
(3) Nucleolus (4) Vacuoles

Ans. [2]

Sol. Plastids are present only in plant cells.

25. Blood is a type of connective tissue, which has -

- (1) R.B.C. (2) W.B.C. (3) Platlets (4) All of the above

Ans. [4]

Sol. R.B.C, W.B.C. & Platlets are components of blood.

26. Bile Juice is secreted from -

- (1) Salivary glands (2) Intestinal glands
(3) Stomach (4) Liver

Ans. [4]

Sol. Bile Juice is secreted from liver

27. When acidity in Stomach increases, the medicine generally used is -

- (1) Sodium bicarbonate (2) Sodium Carbonate
(3) Ammonium Carbonate (4) Ammonium bicarbonate

Ans. [1]

Sol. Sodium bicarbonate reduces stomach acid.

28. Planeria is kept in which group -

- (1) Coelentrata (2) Platyhelminathes
(3) Nematoda (4) Annelida

Ans. [2]

Sol. Planeria is an example of flatworm.

29. Which of the following is an example of Brayophyte -

- (1) Moss (2) Fern (3) Pinus (4) Algae

Ans. [1]

Sol. Moss is an example of Brayophyte.

30. Dissimilarity found in Aves and Mamalia is -

- (1) Warm Blooded Animal (2) Lay eggs
(3) Breathe through Lungs (4) Four chambered heart

Ans. [2]

Sol. Aves are viviparous and mammals are oviparous.

31. Substances necessary for autotrophic Nutrition are -

- (1) CO₂ and H₂O (2) Chlorophyll
(3) Sun light (4) All of the above

Ans. [4]

Sol. All are essential component for photosynthesis.

32. Blood Pressure is measured with an instrument called -
- (1) Thermometer (2) Stethoscope
(3) Sphygmo manometer (4) Clinical Thermometer

Ans. [3]

Sol. A sphygmomanometer or blood pressure meter is a device used to measure blood pressure.

33. Phloem tissues in plants are responsible for -
- (1) Transportation of Water (2) Transportation of Food
(3) Transportation of Amino acids (4) Transportation of Oxygen

Ans. [2]

Sol. Phloem tissue is responsible for transportation of food in plants.

34. The plants in which vegetative propagation is found, are -
- (1) Bryophyllum (2) Sugarcane
(3) Rose (4) All of the above

Ans. [4]

35. Which of the following is not a plant hormone -
- (1) Auxin (2) Gibberellins
(3) Cytokinin (4) Adrenaline

Ans. [4]

Sol. Adrenaline is secreted by adrenal gland in human.

36. Graph drawn from the equation $y = x^2 - 3x - 4$ will be -
- (1) Circle (2) Parabola
(3) Straight line (4) Hyperbola

Ans. [2]

37. For which values of 'a' and 'b' does the following pair of linear equations have an infinite number of solutions

$$2x + 3y = 7, (a - b)x + (a + b)y = 3a + b - 2$$

- (1) $a = 5, b = 1$ (2) $a = 4, b = 2$ (3) $a = 1, b = 5$ (4) $a = 2, b = 4$

Ans. [1]

Sol. $\frac{2}{(a - b)} = \frac{3}{(a + b)} = \frac{7}{3a + b - 2}$

$$2a + 2b = 3a - 3b; \frac{3}{(a + b)} = \frac{7}{3a + b - 2}$$

$$5b = a \quad ; \quad \frac{3}{6b} = \frac{7}{16b-2}$$

$$16b - 2 = 14b$$

$$2b = 2$$

$$b = 1$$

$$a = 5$$

38. If $b^2 - 4ac \geq 0$ then the roots of quadratic equation $ax^2 + bx + c = 0$ is -

$$(1) \frac{b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a}$$

$$(2) -\frac{b}{2a} \pm \frac{\sqrt{b^2 + 4ac}}{2a}$$

$$(3) \frac{b}{2a} \pm \frac{\sqrt{b^2 + 4ac}}{2a}$$

$$(4) -\frac{b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a}$$

Ans. [4]

Sol. $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = -\frac{b}{2a} \pm \frac{\sqrt{b^2 - 4ac}}{2a}$

39. The sum of the third and seventh terms of an A.P. is 6 and their product is 8, then common difference is -

$$(1) \pm 1$$

$$(2) \pm 2$$

$$(3) \pm \frac{1}{2}$$

$$(4) \pm \frac{1}{4}$$

Ans. [3]

Sol. $a + 2d + a + 6d = 6$

$$(a + 2d)(a + 6d) = 8$$

$$2a + 8d = 6$$

$$(3 - 2d)(3 + 2d) = 8$$

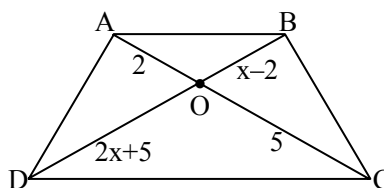
$$a = 3 - 4d$$

$$9 - 4d^2 = 8$$

$$1 = 4d^2$$

$$d = \pm \frac{1}{2}$$

40. In a given figure in trapezium ABCD if $AB \parallel CD$ then value of x is -



$$(1) \frac{29}{8}$$

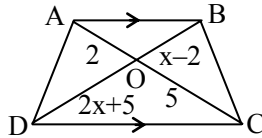
$$(2) \frac{8}{29}$$

$$(3) 20$$

$$(4) \frac{1}{20}$$

Ans. [3]

Sol.



$$\triangle AOB \sim \triangle COD$$

$$\frac{AO}{OC} = \frac{OB}{OD}$$

$$\frac{2}{5} = \frac{x-2}{2x+5}$$

$$4x + 10 = 5x - 10 \Rightarrow 20 = x$$

41. If points $(x, 0)$, $(0, y)$ and $(1, 1)$ are Collinear then the relation is -
 (1) $x + y = 1$ (2) $x + y = xy$ (3) $x + y + 1 = 0$ (4) $x + y + xy = 0$

Ans. [2]

Sol. $\begin{vmatrix} x & 0 & 1 \\ 0 & y & 1 \\ 1 & 1 & 1 \end{vmatrix} = 0 \Rightarrow x(y-1) + 1(-y) = 0 \Rightarrow xy - x - y = 0 \Rightarrow x + y = xy$

42. If $\sin(A+B) = \frac{\sqrt{3}}{2}$, $\cos(A-B) = \frac{\sqrt{3}}{2}$ and $0 < A+B \leq 90^\circ$, if $A > B$ then the value of A and B are -

- (1) $A = 45^\circ, B = 15^\circ$ (2) $A = 60^\circ, B = 30^\circ$ (3) $A = 0^\circ, B = 30^\circ$ (4) $A = 30^\circ, B = 0^\circ$

Ans. [1]

Sol. $A + B = 60^\circ$

$$A - B = 30^\circ$$

$$2A = 90^\circ$$

$$A = 45^\circ$$

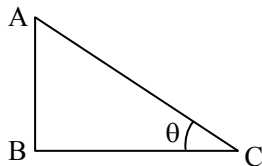
$$B = 15^\circ$$

43. If the Angle of elevation of sun increases from 0° to 90° then the change in the length of shadow of Tower will be -

- (1) No change in length of shadow (2) length of shadow increases
 (3) length of shadow decreases (4) length of shadow will be zero

Ans. [3]

Sol.



Where BC is the length of shadow and θ is variable.

$$\therefore \tan \theta = \frac{AB}{BC} \Rightarrow BC = \frac{AB}{\tan \theta}$$

as θ tends to 90°

So BC tends to 0. So length of shadow decreases so the answer is (3)

But option (4) is correct when final value of $\theta = 90^\circ$ then

$$BC = \frac{AB}{\tan 90^\circ} = \frac{AB}{1/0} = 0$$

$$\therefore BC = 0$$

\therefore length of shadow will be zero.

44. The perimeter of square and circumference of Circle are equal, the area of square is 121 m^2 then the area of circle is -

- (1) $7 \pi \text{ m}^2$ (2) $14 \pi \text{ m}^2$ (3) $21 \pi \text{ m}^2$ (4) $49 \pi \text{ m}^2$

Ans. [4]

Sol. 4 side = $2\pi r$

$$4 \times 11 = 2\pi r$$

$$r = \frac{22}{\pi}$$

$$\therefore \text{area} = \pi r^2 = \pi \cdot \frac{22^2}{\pi^2} = \frac{22 \times 22}{22} \times 7 = \frac{22}{7} \times 49 = 49 \pi$$

45. A drinking glass is in the shape of a frustum of a cone of height 14 cm. The diameter of its two circular ends are 4 cm and 2 cm then the capacity of glass is -

- (1) $102\frac{2}{3} \text{ cm}^3$ (2) $102\frac{1}{3} \text{ cm}^3$ (3) $101\frac{2}{3} \text{ cm}^3$ (4) $101\frac{1}{3} \text{ cm}^3$

Ans. [1]

Sol. $V = \frac{1}{3} \pi h (r_1^2 + r_2^2 + r_1 r_2)$

$$= \frac{1}{3} \times \frac{22}{7} \times 14 (4 + 1 + 2) = \frac{308}{3} = 102\frac{2}{3}$$

46. The median and mode of a frequency distribution are 525 and 500 then mean of same frequency distribution is -

- (1) 75 (2) 107.5 (3) 527.5 (4) 537.5

Ans. [4]

Sol. Mean = $\frac{3 \text{ median} - \text{mode}}{2}$

$$= \frac{3(525) - 500}{2}$$

$$= \frac{1575 - 500}{2}$$

$$= \frac{1075}{2} = 537.5$$

47. The author of the book "The Book of games of chance" Based on probability theory is -

- (1) J. Cardon (2) R.S. Woodward (3) P.S. Laplace (4) P.S. Pherma

Ans. [1]

48. Rationalising the denominator of $\frac{5}{\sqrt{3}-\sqrt{5}}$ is -

(1) $\left(\frac{5}{2}\right)(\sqrt{3}+\sqrt{5})$

(2) $\left(-\frac{5}{2}\right)(\sqrt{3}+\sqrt{5})$

(3) $\left(\frac{5}{2}\right)(\sqrt{3}-\sqrt{5})$

(4) $\left(-\frac{5}{2}\right)(\sqrt{3}-\sqrt{5})$

Ans. [2]

Sol.
$$\frac{5}{\sqrt{3}-\sqrt{5}} \times \frac{\sqrt{3}+\sqrt{5}}{\sqrt{3}+\sqrt{5}}$$

$$= \frac{5(\sqrt{3}+\sqrt{5})}{3-5} = \left(-\frac{5}{2}\right)(\sqrt{3}+\sqrt{5})$$

49. Value of $\frac{2^{100}}{2}$ is -

(1) 1

(2) 50^{100}

(3) 2^{50}

(4) 2^{99}

Ans. [4]

50. The number of Straight line drawn from one point to any other point are -

(1) 4

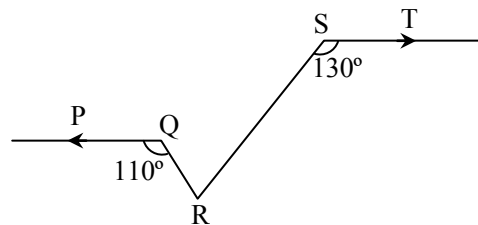
(2) 3

(3) 2

(4) 1

Ans. [4]

51. In a given figure $PQ \parallel ST$, $\angle PQR = 110^\circ$, $\angle RST = 130^\circ$, then value of $\angle QRS$ is -



(1) 20°

(2) 50°

(3) 60°

(4) 70°

Ans. [3]

52. The bisectors of angles of a parallelogram makes a figure which is-

(1) Rectangle

(2) Circle

(3) Pentagon

(4) Octagon

Ans. [1]

Sol.
$$\frac{\angle A}{2} + \frac{\angle B}{2} = \frac{180^\circ}{2}$$

53. The Chord of maximum length in a Circle is called -

- (1) Radius (2) Arc (3) Diameter (4) Point

Ans. [3]

54. Area of triangle ABC whose sides are 24 m, 40m and 32 m is -

- (1) 96 m² (2) 384 m² (3) 43 m² (4) 192 m²

Ans. [2]

Sol. $s = \frac{24 + 40 + 32}{2} = \frac{96}{2} = 48$

$$\text{Area} = \sqrt{48(48 - 24)(48 - 40)(48 - 32)}$$

$$= \sqrt{(16 \times 3)(24)(8)(16)}$$

$$= 16 \times 24 = 384$$

55. Curved surface of right circular cylinder is 4.4 m², radius of base is 0.7 m. then the height is (Take $\pi = 22/7$)

- (1) 1 m (2) 2 m (3) 3 m (4) 4 m

Ans. [1]

56. Who built Jantar-Mantar ?

- (1) Sawai Jai Singh (2) Mirza Raja Jai Singh
(3) Raja Man Singh (4) Pratap Singh

Ans. [1]

57. Who was the author of "Geet Govind" ?

- (1) Sarangdhar (2) Jaidev (3) Madhudas (4) Bihari

Ans. [2]

58. Kaila Devi Sanctuary is situated in which district ?

- (1) Alwar (2) Dungarpur (3) Karauli (4) Udaipur

Ans. [3]

59. Who was mainly responsible for "Bang-Bhang" ?

- (1) Lord Litton (2) Lord Rippon (3) Lord Meuchale (4) Lord Korzen

Ans. [4]

60. In 1913, Dada Saheb Phalke made the movie-
 (1) Basant (2) Raja Harishchandra (3) Anari (4) Paying guest
 Ans. [2]
61. What is Gilotin ?
 (1) Mine of Coal (2) Human Settlement (3) Death Machine (4) Shifting Agriculture
 Ans. [3]
62. Massai Mara national Park is located in -
 (1) India (2) Pakistan (3) Sudan (4) Kenya
 Ans. [4]
63. In which country first time the cultivation of opium begin ?
 (1) Portugal (2) India (3) China (4) Britain
 Ans. [3]
64. Which treaty was imposed on Germany after first world war ?
 (1) Versailles (2) Paris (3) Vienna (4) London
 Ans. [1]
65. Who opened the first Cricket Club in India ?
 (1) Britisher (2) Hindu (3) Jurestreian (4) Muslim
 Ans. [1]
 * According to NTSE the option (3) is correct i.e. Jurestreian (spelling is wrong) **it's Zoroasterians**.
 But the correct answer would be option (1) Britishers **because in the question they have asked about Cricket Club which was opened by Britishers and the Indian Cricket Origin was done by Zoroasterians. For Ref (NCERT History Class IX page no 150)**
66. What is "Barkan" ?
 (1) Name of Sand dune (2) Name of Village
 (3) Name of Tree (4) Name of Mountain
 Ans. [1]
67. Which state coast line is called the Malabar ?
 (1) Gujrat (2) Kerala (3) Rajasthan (4) West Bengal
 Ans. [2]
68. Ranthambore is situated in -
 (1) Rajasthan (2) Arunchal Pradesh (3) Assam (4) Madhya Pradesh
 Ans. [1]

69. The full form of C.N.G. is -
(1) Compound Natural Gas (2) Complex Natural Gas
(3) Compound New Gas (4) Compressed Natural Gas
Ans. [4]
70. The ore of iron is-
(1) Haematite (2) Uranium (3) Bauxite (4) Lignite
Ans. [1]
71. Gender ratio in India is -
(1) 880/1000 (2) 940/1000 (3) 300/1000 (4) 400/1000
Ans. [2]
72. Bhakra-Nangal Project is situated on the River ?
(1) Satluj (2) Tungbhadra (3) Damodar (4) Mahi
Ans. [1]
73. When was "Indian wildlife Protection Act" implemented ?
(1) 1970 (2) 1972 (3) 1974 (4) 1976
Ans. [2]
74. Salty Water lake is -
(1) Jaisamand lake (2) Rajsamand lake (3) Didwana lake (4) Gapsagar lake
Ans. [3]
75. The Rainfall that occurs during winter season is known as-
(1) Monsoon (2) Cyclone (3) Mango Shower (4) Mavath
Ans. [4]
76. Who is the first person of India ?
(1) Prime Minister (2) President (3) Governor (4) Chief Minister
Ans. [2]
77. The Country that is not permanent member of United Nation Organisation is ?
(1) Russia (2) Britain (3) China (4) India
Ans. [4]

78. "The long walk to freedom" is autobiography of ?
(1) Nelson Mandela (2) Mahatma Gandhi (3) Barak Obama (4) Amitabh Bachchan
Ans. [1]
79. "Code of conduct" is related to ?
(1) War (2) Transportation (3) Cereals (4) Election
Ans. [4]
80. Who can seek information from government under "right to information Act" ?
(1) Any Citizen (2) Only Government officials
(3) Only elected members of Lok Sabha (4) Only elected members of Vidhan Sabha
Ans. [1]
81. How many languages are there under article 8th in the Indian Constitution ?
(1) 22 (2) 20 (3) 25 (4) 15
Ans. [1]
82. The first nation of the world which provided adult franchise is -
(1) America (2) India (3) Brazil (4) New Zealand
Ans. [4]
83. Which of the following Country has adopted the one (single) Party System ?
(1) India (2) America (3) Japan (4) China
Ans. [4]
84. In which year Indian National Congress was established -
(1) 1889 (2) 1885 (3) 1985 (4) 1905
Ans. [2]
85. Out of the following which is not a union territory ?
(1) Puducherry (2) Chandigarh (3) Goa (4) Daman and Div
Ans. [3]
86. When was the "National Rural Employment Guarantee Act" Passed ?
(1) 2001 (2) 2003 (3) 2005 (4) 2007
Ans. [3]

87. What is GDP ?
(1) Gross Daily Production (2) Gross Domestic Production
(3) Gross Domestic Power (4) Gross Development Production
Ans. [2]
88. When is the National Consumer Day celebrated in India ?
(1) December, 24 (2) September, 16 (3) March, 8 (4) May, 25
Ans. [1]
89. According to Census-2011 the literacy rate of Rajasthan ?
(1) 48.34 % (2) 54.90 % (3) 67.06 % (4) 74.04 %
Ans. [3]
90. In which year did the Economic Liberalisation start in India ?
(1) 1991 (2) 1996 (3) 1999 (4) 2004
Ans. [1]