All India Science Teachers' Association, West Bengal
SCIENCE APTITUDE AND TALENT SEARCH TEST - 2025

Time : 2 hr. 30 min. **Full Marks : 100**

Class - IX

INSTRUCTIONS :

1) Write your name, class, name of school and roll number both at left and right side on the answer sheet. 2) In the question paper you will find four probable answers : a), b), c) and d) against each question. Find out which one of the answers is correct or the best. There are four circles on the answer sheet corresponding to each question below a), b), c) and d). Now mark the circle below the letter of selected answer by putting a cross mark distinctly with a ball pen. If c) is the correct answer, you are to mark ○○⊗○. **3) 1 mark will be awarded for each correct answer and 1 mark will be deducted for 3 wrong answers.** 4) Don't write anything on the question paper. Don't mark answers on the question paper. Submit the answer sheet only after the examination. 5) You may use additional blank sheet for any rough work, if necessary. 6) Do not waste time for any question which appears difficult to you, better try next question. If you consider first answer to be wrong, blacken it like ● and put ⊗ on correct answer.

1. Factor II of coagulation of blood is

   a) Vit K b) fibrinogen c) prothrombin d) thrombin

2. The element present in the centre of cholorophyll is

   a) Mg b) N c) C d) Mn

3. The organic acid present in lemon is

   a) citric acid b) tartaric acid c) malic acid d) formic acid

4. Right ventricle of human heart is connected to

   a) superior vena cava b) pulmonary artery

   c) aorta d) pulmonary vein

5. The animal having nephridia as the excretory organ, is

   a) cockroach b) earthworm c) man d) toad

6. Retinol is

   a) vitamin C b) vitamin D c) vitamin A d) vitamin K

7. Comb plates are present in phylum

a) ctenophora b) mollusca c) annelida d) chordata

8. An example of a gymnosperm plant is

a) riccia b) volvox c) paddy d) pinus

9. The connective tissue has its origin at

a) ectoderm b) periderm c) mesoderm d) endoderm

10. Intercalated disc is present in

a) non-striated muscle b) heart-muscle

c) nerve-tissue d) epithelial tissue

11. A proteolytic enzyme is

a) maltase b) amylase c) lipase d) pepsin

12. The acid secreted from stomach is

a) HNO_3 b) H_3PO_4 c) HCl d) H_2SO_4

13. The largest lymph gland in human is

a) spleen b) liver c) salivary gland d) thymus

14. The N_2 base absent in DNA is

a) adenine b) uracil c) thymine d) guanine

15. Oxysomes are present in

a) ribosome b) lysosome

c) mitochondria d) golgi bodies

16. Xylem does not contain

a) tracheids b) trachea c) xylem fibres d) sieve tube

17. The unit of photosynthesis is

a) quantasome b) chloroplastid

c) leaf d) mesophyll tissue

18. Of the follwoing, the antitranspirant is

a) O_2 b) abscisic acid c) CO_2 d) sunlight

19. Glycolysis occurs in cell's

a) ribosome b) nucleus c) cytoplasm d) mitochondria

20. One bile salt is

a) bilirubin b) biliverdin c) HCl d) sodium taurocholate

21. A total parasitic plant is

a) swarnalata b) sandal c) lichen d) sundew

22. Allergy is prevented by

a) lymphocytes b) eosinophils c) neutrophils d) RBC

23. Lacis cells are present in

a) lungs b) neurons c) nephron d) eye

24. Maternal antibody is

a) Ig A b) Ig E c) Ig G d) Ig D

25. A disease caused by protozoa is

a) malaria b) AIDS c) dengue d) tetanus

26. A multicellular producer is

a) kelp b) diatom c) amoeba d) dinoflagellate

27. The pigment present in bioluminescent animals is

a) luciferase b) luciferin c) carotenoid d) chlorophyll

28. The alkaloid present in nayantara plant is

a) atropine b) reserpine c) raubasine d) quinine

29. One component of triphala is

a) pudina b) neem c) bel d) amla

30.

Left Column	**Right Column**
A) Aloevera	i) dewormer
B) Neem	ii) antipyretic
C) Curcumin	iii) black pepper
D) Piperine	iv) turmeric

Compare the above two columns and select the correct option.

a) A - ii, B - i, C - iv, D - iii b) A - i, B - ii, C - i, D - i

c) A - iii, B - iii, C - ii, D - ii d) A - iv, B - iv, C - iii, D - iv

31. The unit common to all system of units is of

a) specific gravity b) time c) mass d) velocity

32. Planar angle has

a) neither unit nor dimension b) both unit and dimension

c) unit but no dimension d) dimension but no unit

33. A pair of physical quantities having the same dimensional formula is

a) force and torque b) work and energy

c) power and force d) momentum and acceleration

34. When bigger rain drops fall on our body we feel more pain compared to pain when smaller drops fall. It is so, because the bigger drops have

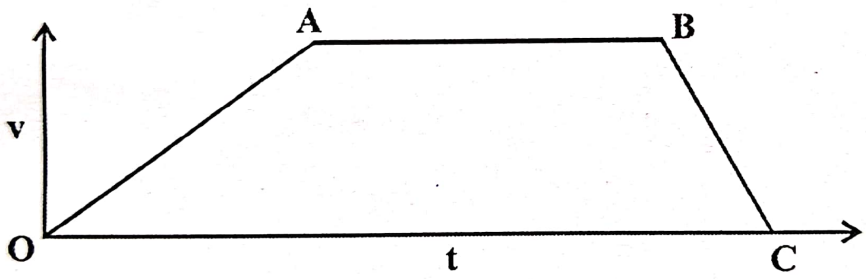
a) higher mass b) higher density

c) higher velocity d) both a) and c)

35. The ratio of distances travelled by a body falling freely from rest in first second and in first 2 sec. is

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

36. The velocity (v) - time (t) graph of a moving train is as shown in the diagram below.



The train is moving with no acceleration in the segment

a) OA b) AB c) BC d) none of a) to c)

37. From Newton's 2nd law of motion, we get F=mf, where F, m and f are force, mass and acceleration respectively. The law is valid for value of f

a) equal to 1 b) greater than 1

c) lesser than 1 d) may be any of a), b), c)

38. In a perfectly elastic collision between two bodies, conserved physical quantities are

a) kinetic energy and linear momentum

b) potential energy and linear momentum

c) mass and acceleration d) velocity and acceleration

39. For a falling body its kinetic energy increases as it falls more and more. Its potential energy, as it falls

a) remains constant b) increases

c) decreases d) may be any of a), b), c)

40. Two bodies of same mass have kinetic energies in the ratio 4:1. Their velocities are in the ratio

a) 1:4 b) 1:1 c) 4:1 d) 2:1

41. If coefficients of rolling friction be r, static friction be s and kinetic friction be k, then

a) $s > k > r$ b) $s < k < r$ c) $s < r < k$ d) $s > r > k$

42. The bulk modulus for an incompressible liquid is

a) zero b) infinite c) unity d) between zero and unity

43. Young modulus may be defined for

a) solid and liquid b) liquid only

c) liquid and gas d) solid only

44. The correct one among the following statements is

a) rubber is more elastic than steel

b) rubber is less elastic than steel

c) rubber is not an elastic material

d) steel is not an elastic material

45. An ice-cube of density 900 $kg.m^{-3}$ is floating in water of density 1000 $kg.m^{-3}$. The percentage of volume of ice-cube outside water is

a) 20 b) 35 c) 10 d) 25

46. Sprayer is made as an application of

a) Archimedes' principle b) Pascal's law

c) Bernoulli's theorem d) Boyle's law

47. Small insects can run over pond water due to the property of water called

a) buoyancy b) elasticity

c) viscosity d) surface tension

48. Density of mercury is 13600 $kg.m^{-3}$. Density of mercury in $gm.cm^{-3}$ is

a) 1.36 b) 136 c) 0.76 d) 13.6

49. A plane mirror produces a magnification of

a) 0 b) –1 c) +1 d) any value between 0 and +1

50. A ray of light travels from an optically denser medium towards a rarer medium. The critical angle for the two media is C. The maximum possible angle of deviation of the ray is

a) $180° - 2C$ b) $90° - C$ c) $2C$ d) $90° + C$

51. The characterstic not possessed by nuclear force is

a) it is greater than gravitational force

b) it is not like an electrostatic force

c) it is in the maximum range of about 10^{-12} cm

d) it exists outside the nucleus

52. ${}^{17}_{8}O$ is an isotope of oxygen. Actual mass of an atom of ${}^{17}_{8}O$ is

a) 17 gm b) 17 a.m.u c) 17 kg d) 8 gm

53. The atomic number and the mass number of an element ${}^{A}_{Z}X$ are Z and A respectively. Then the number of proton, electron and neutron in X^+ state are respectively

a) Z, Z–1, A–Z b) Z, Z+1, A–Z

c) Z–1, Z, A–Z d) Z–1, A–Z, Z+1

54. If the mass of X moles of sulphur dioxide is equal to the mass of one mole of oxygen, then the value of X is

a) 1 b) 2 c) 0.5 d) 3

55. The dispersion medium and the dispersed phase in fog are respectively.

a) gas and liquid b) gas and gas

c) liquid and liquid d) solid and liquid

56. The odd one in the following having solubility different from the others with the increase in temperatue is

a) $NaNO_3$ b) KNO_3 c) $CaSO_4$ d) NH_4Cl

57. If 2 gm molecules of NaCl be present in 500ml solution, then the molarity of solution is

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

58. Statement A : Metallic oxides are basic.

Reason B : Metallic oxides produces alkali when they react with water.

a) Both A and B are wrong b) A is right but B is wrong

c) A is wrong but B is right

d) Both A and B are right and B is the proper explanation of A.

59. Zn, reacts with dil. H_2SO_4 to produce H_2 gas, but Ag is unable to produce H_2 ; because in the electro chemical series

a) both Zn and Ag are below H

b) Zn is above H but Ag is below H.

c) Zn is below H but Ag is above H

d) both Zn and Ag are above H.

60. A colourless gas turns blue litmus solution red when passed through it and it turns lime water milky after passsed through it. The gas is

a) CO_2 b) NO_2 c) CO d) NO

61. Two colourless gases produce white fume when they are mixed. The gases are

a) HCl and O_2 b) NH_3 and HCl

c) NH_3 and O_2 d) H_2 and O_2

62. The radical that can be identified with 'Ring Test' is

a) SO_4^{2-} b) NO_3^- c) NO d) S^{2-}

63. If the concentration of H^+ ion in a solution is 10^{-3} mol. l^{-1}, then its pH is

a) 11 b) 4 c) 7 d) 3

64. An oxide MO reacts with CO_2 to produce a salt MCO_3, MO behaves like

a) a basic oxide b) an acidic oxide

c) an amphoteric oxide d) a neutral oxide

65. If a salt is produced by the reaction of $NaHSO_4$ and a base, then this salt wil be called

a) an acid salt b) a neutral salt

c) a basic salt d) a salt impossible to predict.

66. If the pressure of air above a liquid be decreased, then its boiling point will

a) increase b) remain unchanged

c) decrease d) first increase and then will decrease.

67. The salt not producing permanent hardness of water is

a) $Mg\ Cl_2$ b) $Fe\ Cl_2$ c) $Ca\ SO_4$ d) $Ca\ (H\ CO_3)_2$

68. The reason behind the decrease of quanitity of dissolved O_2 in water is

a) bacteria and microbes absorb O_2 directly

b) O_2 is used in the dissociation of organic matter present in water.

c) it is used in respiration

d) O_2 goes out of water.

69. If hard water be passed through cation exchange resins and anion exchange resins, then the ions replaced are respectively

a) $R\ SO_3H$ and $R\ NH_3OH$ b) $R\ NH_3OH$ and $R\ SO_3H$

c) H^+ and OH^- d) OH^- and H^+

70. The pollution that causes enamel decoloration and pitting in teeth is

a) arsenic pollution b) fluoride pollution

c) mercury pollution d) lead pollution

71. If an item is sold at a profit percentage equal to its cost price, and the selling price is 'm' times of the cost price then the cost price of the item is

a) $(m - 1)\ 100$ b) $(m + 1)\ 100$

c) $(m^2 - 1)\ 100$ d) $(m^2 + 1)\ 100$

72. If a businessman makes a certain profit by selling an item at Rs. 5 and the profit is increased by 50% when the same item is sold at Rs. 6, then the cost price of the item is

a) Rs. 3 b) Rs. 2.50 c) Rs. 2 d) Rs. 4

73. The diagonal of a square A measures $(x + y)$. If the area of the square B is twice the area of A, then the diagonal of B measures

a) $2\ (x + y)$ b) $2x + 4y$ c) $\sqrt{2}\ (x + y)$ d) $x + 2y$

74. In a right angled triangle ABC, $\angle C = 90°$, BC = a, CA = b, AB = c and the length of the perpendicular drawn from C to AB is p, then a correct relation is

a) $\frac{1}{p^2} = \frac{1}{a^2} - \frac{1}{b^2}$ b) $\frac{1}{a^2} = \frac{1}{p^2} + \frac{1}{c^2}$

c) $\frac{1}{c^2} = \frac{1}{a^2} + \frac{1}{b^2}$ d) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

75. The distance of the point $\left(\frac{2\sqrt{a}}{1+a}, \frac{1-a}{1+a}\right)$ from the origin is

a) 1 b) $\frac{1}{a} + \frac{1}{b}$ c) a d) 2a

76. If x = 991 ; y = 992 and z = 994, than the value of $x^2 + y^2 + z^2 - xy - yz - zx$ is

a) 0 b) 7 c) 20 d) 40

77. A factor of x is y, then the other factor is

a) $\frac{y}{x}$ b) y c) x d) $\frac{x}{y}$

78. When the polynomial $x^{51} + 51$ is divided by (x + 1), the remainder is

a) 50 b) 0 c) 1 d) 2

79. The expression $13^9 - 6^9$ is divisible by

a) (13 – 6) b) (13 + 6) c) (13 ÷ 6) d) (13 × 6)

80. x is the digit in unit's place and 3 is the digit is ten's place of a number of 2 digits. If 3 is subtracted from the number, the value is

a) x b) 10x c) 27 – x d) 27 + x

81. The straight line ax + by + c = 0 intersects the x-axis at the point

a) $\left(\frac{c}{a}, \frac{c}{b}\right)$ b) $\left(-\frac{c}{a}, 0\right)$ c) $\left(0, -\frac{b}{a}\right)$ d) $\left(-\frac{c}{a}, \frac{b}{a}\right)$

82. If $10^{2n} = 25$, then 10^{-n} is

a) $\frac{1}{5}$ b) $-\frac{1}{5}$ c) -5 d) 5

83. The number of rational numbers greater than -5 and less than 7 is

a) 7 b) 10 c) 12 d) infinite

84. If the mid-point of the sides are joined, then which of the following figures gives a rhombus ?

a) Rhombus b) Triangle

c) Rectangle d) Parallelogram

85. If the diagonal AC divides the $\angle BAD$ into two equal parts of a parallelogram ABCD and $\angle BAC = 35°$, then $\angle ABC =$

a) 120° b) 70° c) 110° d) > 90°

86. The area of the triangle formed by the intersection of the straight lines $x + y = 0$, $x - y = 4$ and the x-axis is

a) 16 Sq. unit b) 2 Sq. unit c) 4 Sq. unit d) 8 Sq. unit

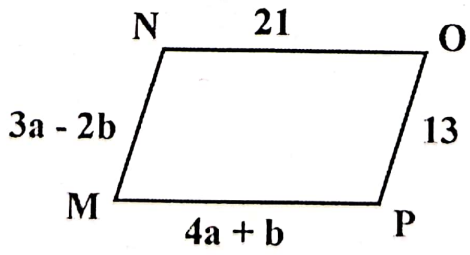
87. A^1 is the area of the circle with radius r_1. The difference of area between the larger circle (radius r_1) and the smaller circle (radius r_2) is A. Then $\frac{r_2}{r_1} =$

a) $\sqrt{1-\frac{A^1}{A}}$ b) $\sqrt{1+\frac{A^1}{A}}$ c) $\sqrt{1-\frac{A}{A^1}}$ d) $\sqrt{1+\frac{A}{A^1}}$

88. $\sqrt[3]{2}\ \sqrt[4]{2}\ \sqrt[12]{32} =$

a) $\sqrt{2}$ b) $\sqrt[13]{2}$ c) 2 d) $\sqrt[12]{32}$

89. If MNOP is a parallelogram, then a and b are



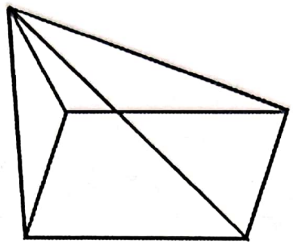
a) $a = 1, b = 5$ b) $a = 5, b = 1$

c) $a = \frac{11}{7}, b = \frac{34}{7}$ d) $a = \frac{34}{7}, b = \frac{11}{7}$

90. The sixth term of the series 6, 11, 21, 36, 56..... will be

a) 42 b) 51 c) 81 d) 91

91. The number of vertices of the given figure is



a) 4 b) 6 c) 5 d) 8

92. If $\left(c^2 + kc + \frac{1}{16}\right)$ is a perfect square, then the value of k is

a) 4 b) $\frac{1}{4}$ c) 2 d) $\frac{1}{2}$

93. One value of $\sqrt{10+\sqrt{27+\sqrt{65+\sqrt{256}}}}$ is

a) 9 b) 8 c) 6 d) 4

94. If $\frac{7-21a}{3a}+\frac{7-21b}{3b}+\frac{7-21c}{3c}=0$, then the value of $\left(\frac{2}{a}+\frac{2}{b}+\frac{2}{c}\right)$ is

a) 18 b) 3 c) 9 d) 27

95. If $x^2 + \frac{1}{x^2} = 51$, then the value of $x^3 - \frac{1}{x^3}$ is

a) 364 b) 410 c) 356 d) 328

96. If x and y are positive real numbers then which one of the following is correct ?

a) $x > y \Rightarrow -x > -y$ b) $x > y \Rightarrow -x < -y$

c) $x > y \Rightarrow \frac{1}{x} > \frac{1}{y}$ d) $x > y \Rightarrow \frac{1}{x} < -\frac{1}{y}$

97. In a mixture of 70 litre of milk and water, water is 30%. A person gave 20 litre of this mixture to a customer and then added 20 litre of water to the remaining mixture. The percentage of milk in the final mixture is

a) 48 b) 50 c) 40 d) 53

98. A circle is inscribed in a given square and another circle is circumscribed around the square. The ratio of the area of the inscribed circle to that of the circumscribed circle will be

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

99. The value of $\left(2x^2 - \frac{1}{400}y^2\right)^2 - \left(2x^2 + \frac{1}{400}y^2\right)^2$ is

a) $-\frac{x^2y^2}{40}$ b) $\frac{xy}{50}$ c) $-\frac{x^2y^2}{50}$ d) $-\frac{x^2y^2}{5}$

100. Working 5 hours a day, Toton can complete a work in 8 days and working 6 hours a day, Mamon can complete the same work in 10 days. Working 8 hours a day, they can jointly complete the work in

a) 3 days b) 4 days c) 5 days d) 6 days

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