SAMPLE PAPER-01 SCHOLASTIC APTITUDE TEST

1. Mendel observed 7 pairs of contrasting characters in Pisum. Which one of the following is not a part of that?
(1) Tall and Dwarf
(2) Yellow and Green seed colour
(3) Terminal and Axial Flower
(4) Rough and Smooth stem

2. Which type of variation is inheritable?
(1) Somatic variation
(2) Germinal variation
(3) Both somatic and germinal variation
(4) None of the above

3. Mitral valve is present in between
(1) Right auricle and right ventricle
(2) Left auricle and left ventricle
(3) Right ventricle and pulmonary artery
(4) Left ventricle and aorta

4. If salivary amylase is lacking in the saliva, which of the following processes in the mouth cavity will be affected?
(1) Proteins breaking down into animo acids
(2) Starch breaking down into sugars
(3) Fats breaking down into fatty acids and glycerol
(4) Absorption of vitamins

5. In an ecosystem, 10% of available energy transferred from one trophic level to next is in the form of
(1) Heat Energy (2) Chemical Energy
(3) Mechanical Energy (4) Light Energy

6. The action of bile can be termed as
(1) Esterification (2) Hydrogenation
(3) Oxidation (4) Emulsification

7. Sleeping sickness is caused by a Protozoa Trypanosoma. This protozoa is present in the salivary gland of which blood sucking insect ?
(1) Culex mosquito (2) Fruit fly
(3) Anopheles mosquito (4) Tsetse fly

8. Cut leaves remain green for longer time if dipped in
(1) Auxin (2) Cytokinins
(3) Ethylene (4) Gibberellins

9. Which of the following blood cells is responsible for distribution of oxygen in the body?
(1) Erythrocytes (2) Thromobocytes
(3) Leukocytes (4) Lymphocyte

10. Cell organelle which differentiates plant cell from animal cell is
(1) Cell Membrane (2) Plastids
(3) Nucleus (4) Vacuoles

11. Which of the following is a Pteridophyta?
(1) Marchantia (2) Ulothrix
(3) Marsilea (4) Spirogyra

12. Which of the following is not a foreign breed cow?
(1) Sahiwal (2) Holstein
(3) Brown Swiss (4) Jersey

13. Which of the options given below would not work in the following sentence?
In order for the body to absorb and use_____ these must be broken down by hydrolysis into _____.
(1) polysaccharides, monosaccharides
(2) amino acids, proteins
(3) fats, glycerol and fatty acids
(4) disaccharides, monosaccharides

14. Which of the statements about the reaction given below are incorrect?
$2PbO(s)+C(s) \rightarrow 2Pb(s) + CO_2(g)$
(i) Lead is getting reduced
(ii) Carbon dioxide is getting oxidised
(iii) Carbon is getting oxidised
(iv) Lead oxide is getting reduced
(1) (i) and (ii) (2) (i) and (iii)
(3) (i), (ii) and (iii) (4) All

15. Plaster of Paris is produced by heating gypsum in a kiln (furnace). The temperature at which it should be heated is
(1) 173 K (2) 273K (3) 373 K (4) 473 K

16. Which of the following will replace hydrogen from acids to form salts?
(1) S (2) P (3) Na (4) O

17. Element X forms a chloride with formula XCl_3. X would most likely be in the same group of the Periodic Table as
(1) Na (2) Al (3) Mg (4) Si

18. Which of the following will undergo substitution reaction?
(1) C_2H_4 (2) C_3H_6 (3) C_3H_4 (4) None

19. Which of the following pairs will give displacement reactions?
(1) NaCl solution and copper metal
(2) $MgCl_2$ solution and aluminum metal
(3) $FeSO_4$ solution and silver metal
(4) $AgNO_3$ solution and copper metal

20. A solution of $CuSO_4$ was kept in an iron pot. After a few days, the iron pot was found to have a number of holes in it. Which of the following pots can be used for storing $CuSO_4$ solution?
(1) Copper pot (2) Silver pot
(3) Both (1) & (2) (4) None

21. A student was given three samples in test tubes I, II and III respectively. On dipping a pH paper in them, he observed that the colour of pH paper turned orange in test tube I, blue in test tube II and green in test tube III. If arranged in decreasing order of their hydrogen ion (H^+) concentration, the sequence of these test tubes would be:
(1) I, III, II (2) I, II, III (3) III, I, II (4) II, III, I

22. Which of the following sets of elements do not belong to the same group in the Modern Periodic Table?
(i) F, Cl, Br (ii) Na, K. Rb
(iii) P, S, Cl (iv) C, Si, Ge
(1) (i) (2) (ii)
(3) (iii) (4) (iii) & (iv)

23. An organic compound (X) has the molecular formula $C_2H_4O_2$. Compound (X) evolves carbon dioxide from Sodium carbonate. Compound (X) reacts with ethanol to form (Y) used for making perfumes. The chemical formula of (Y) is
(1) C_2H_5OH (2) CH_3COOH
(3) $CH_3COOC_2H_5$ (4) $CH_3COC_2H_5$

24. Which of the following has maximum non-metallic character ?
(1) Cl (2) F (3) Br (4) I

25. Which of the following has maximum number of molecules?
(1) 7 grams nitrogen (g)
(2) 23 grams nitrous oxide (g)
(3) 2 grams Hydrogen (g)
(4) 16 grams oxygen (g)

26. Select the incorrect statement.
(1) C_3H_8 does not have any isomer.
(2) $HCOOCH_3$ and CH_3COOH are not same organic compounds.
(3) There is no organic compound with formula CH_2O.
(4) C_3H_4 has two π – bonds.

27. A Hydrogen gas filled balloon when released from the surface of moon would
(1) rise up with an acceleration of 9.8 m/s^2.
(2) rise up with an acceleration of $(9.8 \times 6) m/s^2$.
(3) neither climb nor fall.
(4) fall with an acceleration of $(9.8/6) m/s^2$.

28. In which of the following situations, you will not experience weightlessness?
(1) If you are at the centre of the Earth.
(2) You are falling freely under gravity of the Earth.
(3) Inside a space craft which is in an orbit around the Earth.
(4) In a lift moving downwards with uniform velocity.

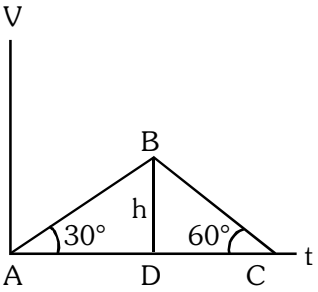
29. An object is moving with a speed of 1.0 m/s. A force F_1 is required to stop it over a distance X. If the speed of the object increases to 3.0 m/s a force F_2 is required to stop it over the same distance X. The ratio $F_1 : F_2$ will be:
(1) 1:3 (2) 3:1 (3) 1:9 (4) 1:6

30. A bullet when fired at a target with a speed of 100 m/s, penetrates 1 m into it. If the target is 0.25 m thick, then it will emerge with a velocity (in m/s) of:
(1) $100 \times (\sqrt{3}/2)$ (2) $100 \times (2/\sqrt{3})$
(3) $100 \times (\sqrt{5}/2)$ (4) $100 \times 2/\sqrt{5}$

31. On a stationary sail boat, air is blown at the sails from a fan attached to the boat. The boat will:
(1) move forward
(2) spin around
(3) move backward
(4) remain stationary

32. A bob of mass 0.1 kg, hung from the ceiling of a room by a string 2 m long is set into oscillation.
The speed of the bob at its mean position is 1 m/s. What is the trajectory of the motion of the bob if the string is cut when the bob is at one of its extreme positions?
(1) follows a parabolic path
(2) falls vertically downwards
(3) moves along the circular path with radius equal to length of the string
(4) moves back towards the mean position

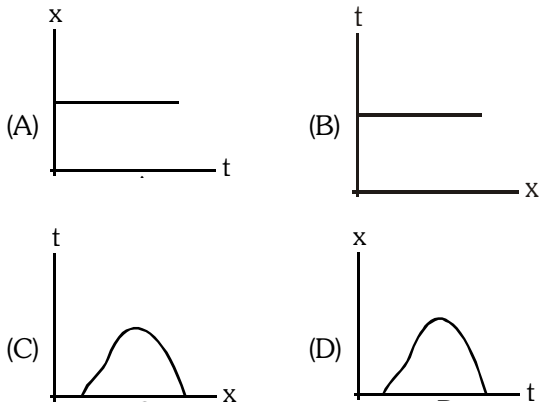
33. The velocity - time (v-t) graph of a body is shown in the figure, for the intervals AD and DC, the ratio of the distance covered is:



(1) 3 : 1 (2) 1 : 3

(3) $\sqrt{3}:1$ (4) $\sqrt{3}:2$

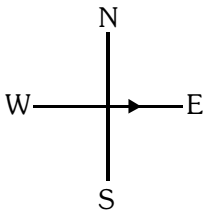
34. Which of the following distance - time (x -t) graphs, labelled as A, B, C and D are not possible?



(1) A and B (2) B and C

(3) B and D (4) A and D

35. A current carrying straight conductor is placed in the east-west direction and the current is flowing in it from west to east direction in the plane of the paper. What will be the direction of the force experienced by this conductor due to the earth's magnetic field?



(1) Perpendicularly outwards to the plane of the paper

(2) Perpendicularly inwards to the plane of the paper

(3) Along North in the plane of the paper

(4) Along South in the plane of the paper

36. Water in an electric kettle connected to 220 V supply took 5 minutes to reach its boiling point. How long would it have taken if the supply had been of 200 V?

(1) 5.05 minutes (2) 6.05 minutes

(3) 5.0 minutes (4) 6.0 minutes

37. In the figure shown below, A and B represent two straight wires carrying equal currents in a direction at right angles to the plane of paper inwards. What will be the magnetic field strength at K, mid-point of line joining A and B? (assuming there is no effect of the magnetic field of the Earth)

× ■ ×

A K B

(1) Equal to magnetic field strength produced by current in anyone of the conductors A or B

(2) Equal to twice the magnetic field strength produced by current in anyone of the conductors A or B

(3) Zero

(4) Can't be determined

38. Find the incorrect statement from the following

(1) When a ray of light enters from one optical medium to another having different refractive index, its speed intensity changes but frequency does not change.

(2) A student sitting in the first row is unable to read clearly from the black board because he is suffering from myopia.

(3) Iris is responsible for accommodation of the eye

(4) Stars seem higher than they actually are because of the bending of light on passing through Earth's atmosphere

39. A ray of light is incident on the surface of separation of a medium with the velocity of light in air at an angle 45° and is refracted in the medium at an angle 30°. What will be the velocity of light in the medium?

(1) 1.96×10^8 m/s (2) 2.12×10^8 m/s

(3) 3.18×10^8 m/s (4) 3.33×10^8 m/s

40. A submarine emits a SONAR pluse which returns from an underwater cliff in 1.02 s. If the speed of sound in salt water is 1531 m/s, how far away is the cliff ?

(1) 500 m (2) 1 km

(3) 781 m (4) 600 m

41. $\sqrt{81}+\sqrt{0.81}=10.09-x$, then x is equal to:

(1) 0.0019 (2) 0.00019

(3) 0.019 (4) 0.19

42. The greatest number among 2^{50}, 3^{40}, 4^{30}, 5^{20} is:

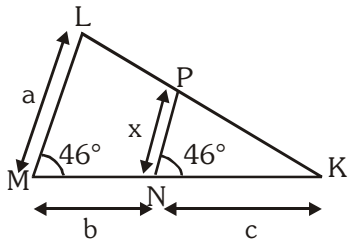
(1) 2^{50} (2) 3^{40} (3) 4^{30} (4) 5^{20}

43. X takes 3 hours more than Y to walk 30 km, but if X doubles his pace, he is ahead of Y by $1\frac{1}{2}$ hour. The speed of Y is:

(1) 3.33km/hr (2) 10 km/hr

(3) 5 km/hr (4) 2.5km/hr

44. Value of x is:



(1) $\frac{ac}{b+c}$ (2) $\frac{cb}{b+c}$ (3) $\frac{b+c}{ac}$ (4) $\frac{b+a}{b+c}$

45. If $3^{2x^2-9x}=81^{-1}$ then x is:

(1) 4,1/2 (2) 2,1/4

(3) 2,1 (4) Both (1) and (2)

46. If x is z % of y, then y will be how much percent of x?

(1) $\frac{1000}{z}$ (2) $\frac{100}{z^2}$

(3) $\frac{1000}{z^2}$ (4) $\frac{10000}{z}$

47. If $a\cos\theta-b\sin\theta=c$, then $a\sin\theta+b\cos\theta=?$

(1) $\pm\sqrt{a^2+b^2+c^2}$ (2) $\pm\sqrt{a^2+b^2-c^2}$

(3) $\pm\sqrt{c^2-a^2-b^2}$ (4) None of these

48. Diameter of moon is approximately one fourth of the diameter of earth. What fraction of the volume of the earth is the volume of moon?

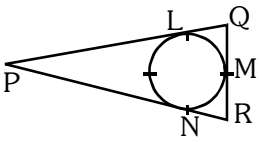
(1) 1/4 (2) 1/8 (3) 1/64 (4) 64/1

49. Which one is false?

(1) $d = a_n - a_{n-1}$ (2) $t_n = S_n - S_{n-1}$

(3) $d=\frac{t_{n+1}-t_{n-1}}{2}$ (4) $d = S_{n-2} - S_{n-1}$

50. In the given figure a circle is inscribed in a ΔPQR with PQ = 10 cm, QR = 8 cm, PR = 12 cm. Length of PL is:



(1) 3cm (2) 5cm (3) 7cm (4) 10cm

51. A student obtains 75%, 80% and 85% marks in three subjects. If the marks of any other subject is added, then his average cannot be less than:

(1) 60% (2) 65% (3) 70% (4) 80%

52. The angle of elevation of a cloud from a point 60 m above a lake is 30° and angle of depression of the reflection of cloud in the lake is 60°. The height of the cloud is

(1) 60 m (2) 120 m

(3) 140 m (4) 50 m

53. If $\sqrt{19+\sqrt{30+\sqrt{32+x}}}=5$ then the value of x is:

(1) 4 (2) 2 (3) 3 (4) 5

54. If $f(x)=\frac{x^3+6x^2+9x+12}{x^2+2x+7}$ then

$(f(3))^2-f(2)f(1)$ will be

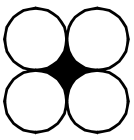
(1) $\frac{164972}{9075}$ (2) $\frac{164875}{9000}$

(3) $\frac{165575}{10000}$ (4) None of these

55. With the money I have I can buy 50 pens or 150 pencils. I keep 10% of it aside for taxi fare and with the remaining money I purchase 54 pencils and 'p' pens. The value of 'p' is:

(1) 32 (2) 30 (3) 29 (4) 27

56. Find the area of the shaded region if the radius of each circle is 1 cm:



(1) $(4-\pi)$ cm^2 (2) $\left(2-\pi x\sqrt{3}\right)$cm^2

(3) $\left(5-\pi x\sqrt{3}\right)$cm^2 (4) None of the above

57. Three positive integers a_1, a_2, a_3 are in AP such that:

$a_1 + a_2 + a_3 = 33$ and $a_1 \times a_2 \times a_3 = 1155$. Values of a_1, a_2, a_3 are:

(1) 8,11,14 (2) 7,11,15

(3) 9,8,16 (4) 10,11,12

58. If $A(x_1,y_1)$, $B(x_2,y_2)$ and $C(x_3, y_3)$ are the vertices of ΔABC then the co-ordinates of the centroid of the triangle are:

(1) $(3(x_1 + x_2 + x_3), 3(y_1 + y_2 + y_3))$

(2) $\left(\frac{x_1^2 + x_2^2 + x_3^2}{3}, \frac{y_1^2 + y_2^2 + y_3^2}{3}\right)$

(3) $\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3}\right)$

(4) None of these

59. If $\alpha, \beta, \gamma, (\alpha + \beta - \gamma), (\beta + \gamma - \alpha)$ and $(\gamma + \alpha - \beta)$ be acute angles such that:

$\sin(\alpha + \beta - \gamma) = \frac{1}{2}, \cos(\beta + \gamma - \alpha) = \frac{1}{2},$

$\tan(\gamma + \alpha - \beta) = 1$ value of γ is:

(1) $37\frac{1}{2}°$ (2) 45° (3) 105° (4) $52\frac{1}{2}°$

60. Evaluate: $\frac{\sec^2 54° - \cot^2 36°}{\text{cosec}^2 57° - \tan^2 33°} + 2\sin^2 38° \cdot \sec^2 52° \cdot \sin^2 45°$

(1) $\frac{7}{2}$ (2) 2 (3) $\frac{5}{2}$ (4) $\frac{1}{2}$

61. Gluseppe Garibaldi was the freedom fighter of _____.

(1) Germany (2) France

(3) Italy (4) Russia

62. Which of the following country was not included in Balkan region ?

(1) Romania (2) Greece

(3) France (4) Croatia

63. In which of the following city of India the first cotton mill was established ?

(1) Kanpur (2) Ahmadabad

(3) Bombay (4) Madras

64. Who published the newspaper Sambad Kaumudi?

(1) Lala Lajpat Rai

(2) Raja Ram Mohan Roy

(3) Vidya Sagar

(4) Krishnaji Trimbuck Ranade

65. Who were the members of Jacobin Club ?

(1) Nobles of the society

(2) Less prosperous section of society

(3) Industrialist of the society

(4) None of the above

66. Czar Nicolas II was the Emperor of :

(1) France (2) Germany

(3) Russia (4) England

67. Dhangars are the Pastoral community of _____.

(1) Himachal Pradesh (2) Jammu & Kashmir

(3) Maharashtra (4) Rajasthan

68. Who were Mulattos ?

(1) People of mixed Indian and African descent

(2) People of mixed Indian and European descent

(3) People of mixed European and African descent

(4) People of mixed American and Indian descent

69. Who among the following is the author of the novel 'Hard Times'?

(1) Leo Tolstoy (2) Thomas Hardy

(3) Charles Dickens (4) Samuel Richardson

70. Which one of the following is the ancient name of Tokyo ?

(1) Osaka (2) Nagam

(3) Gifu (4) Edo

71. Which of the following states do not have International boundary ?

(1) Jharkhand (2) West Bengal

(3) Arunachal Pradesh (4) Sikkim

72. Inter tropical convergence zone (ITCZ) is a broad trough of low pressure in _____ latitudes.

(1) Polar latitudes (2) Sub tropical latitude

(3) Sub polar latitude (4) Equatorial latitude

73. In which year Wildlife Act was implemented in India?

(1) 1980 (2) 1975 (3) 1972 (4) 1977

74. Birth rate is :
(1) The number of live births per 100 persons in a year
(2) The number of births per 1000 persons in a year
(3) The number of live births per 1000 persons in a year
(4) The difference between the number of births and deaths per thousand persons in a year

75. The wide plains along the Bay of Bengal in the northern part are known as _____.
(1) Coromondel coast (2) Kannad coast
(3) Malabar coast (4) Northen circar

76. Which of the following is the standard meridian of India ?
(1) 82° 35'E (2) 85° 30'E
(3) 82° 30'E (4) 85° 35'E

77. Against the construction of which one of the following multipurpose projects was the Narmada Bachao Andolan launched ?
(1) Sardar Sarovar (2) Bhakra Nangal
(3) Rihand (4) Tehri

78. In which of the following states Black soil is not found ?
(1) Maharashtra (2) Gujarat
(3) Madhya Pradesh (4) Rajasthan

79. Which of the following agencies markets steel for the public sector ?
(1) Hail (2) Tata Steel
(3) Sail (4) Mncc

80. In which country the first Earth Summit was held?
(1) Australia (2) India
(3) Brazil (4) South Africa

81. In which year Indian National Congress was founded?
(1) 1885 (2) 1880
(3) 1890 (4) 1884

82. Who is Partisan ?
(1) Disloyal party member
(2) Staunch party member
(3) Estranged party member
(4) None of the above

83. Who was the chairman of the drafting committee of Indian constituent assembly ?
(1) Jawaharlal Nehru
(2) Motilal Nehru
(3) Rajender Prasad
(4) B.R. Ambedkar

84. Which one of the following country is not a permanent member of UN Security council ?
(1) China (2) Japan
(3) France (4) Russia

85. When was Universal Adult Franchise granted in India ?
(1) 1945 (2) 1951
(3) 1950 (4) 1955

86. Mao, the leader was related to _____ revolution.
(1) Japanese (2) Chinese
(3) Russian (4) French

87. In which of the following state Nationalist Congress Party (NCP) is a major party ?
(1) Karnataka (2) Rajasthan
(3) Maharashtra (4) Chattisgarh

88. Among the following, which country suffered disintegration due to political fights on the basis of religious and ethnic identities ?
(1) Belgium (2) India
(3) Yugoslavia (4) Netherland

89. Which of the following state has more than 40 lok sabha constituencies ?
(1) Madhya Pradesh (2) Tamil Nadu
(3) Andhra Pradesh (4) Gujarat

90. _____ of seats in panchyati raj bodies are reserved for women.
(1) 2/3 (2) 1/2
(3) 1/4 (4) 1/3

91. Underempolyment occurs when people :
(1) are not willing to work
(2) are working in lazy manner
(3) are not paid for their work
(4) are working less than what they are capable of doing

92. Under NREGA 2005, all those who are able to, and are in need of work have been guranteed _____ days of employment in a year.
(1) 150 days (2) 120 days
(3) 100 days (4) 140 days

93. In which year the Indian government enacted the Consumer Protection Act ?
(1) 1984 (2) 1985
(3) 1986 (4) 1990

94. In which year the Antyodaya Anna Yojana was launched ?
(1) 2000 (2) 2001
(3) 2004 (4) 2006

95. Insurance company is in the _____ sector.
(1) Primary (2) Secondary
(3) Tertiary (4) None of the above

96. Rainwater harvesting is made compulsory in which state, for the first time?
(1) Meghalaya (2) Rajasthan
(3) Tamil Nadu (4) Punjab

97. Constituent Assembly met for ___ days to draft Indian constitution
(1) 365 (2) 114 (3) 90 (4) 150

98. A distinct section of a document
(1) Draft (2) Tryst
(3) Clause (4) Philosophy

99. In this session of the congress, Non-Cooperation was adopted
(1) Negpur Session 1920
(2) Lahore Session 1920
(3) Calcutta Session 1921
(4) Surat Session 1921

100. Disguised Unemployment can be seen in
(1) Rural areas (2) Urban areas
(3) Both (1) and (2) (4) None of these

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