

SAMPLE PAPER

SET - 1

CLASS - IX



AVIRAL CLASSES

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PHYSICS

- Inertia is a
 - Intrinsic property
 - Extrinsic property
 - Both (a) & (b)
 - None of these
- Newton's second law and first law respectively defines force
 - Qualitatively, quantitatively
 - Quantitatively, qualitatively
 - Qualitatively, qualitatively
 - Quantitatively, quantitatively
- Force required to produce acceleration of 20 m/s^2 in a body of mass 1000 gram is
 - 25 N
 - 50 N
 - 20 N
 - 50 N
- Two balls of masses 8 m and 10 m are in motion with velocities $3V$ and $1/4 V$ respectively. Ratio of momentum would be
 - $9.5 : 1$
 - $1 : 9.8$
 - $9.6 : 1$
 - $9 : 1$
- For relation $\frac{m \Delta V}{\Delta t}$ to be valid, the condition necessary is
 - Velocities can be small or even very large
 - Mass can change
 - Mass is constant
 - Both (a) and (b)
- Force of attraction between two bodies of mass 100 kg and 128 kg separated by distance of 50 meter . ($G = 6.7 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$)
 - $3.4 \times 10^{-10} \text{ N}$
 - $3.6 \times 10^{-11} \text{ N}$
 - $3.2 \times 10^{-1} \text{ N}$
 - $4 \times 10^{11} \text{ N}$
- Statement (i) - Mass can be variable
Statement (ii) - Mass is always constant
Statement (iii) - Mass changes at speed of light
Pick the correct statement
 - (i)
 - (ii)
 - (iii)
 - (i) and (iii)
- A body mass 50 kg is slowed down from 20 m/s to 10 m/s by retarding force in 5 second . The work done is
 - -2500 J
 - -2000 J
 - -1800 J
 - -2750 J
- Kinetic energy of object of mass (M) moving with velocity of 10 m/s is 100 J . If velocity is increased by 4 times, the K.E. is
 - 650 J
 - 1800 J
 - 1600 J
 - 1400 J
- No work is done when object
 - Moves opposite to direction of force
 - Moves 90° to direction of force
 - Moves along the direction of force
 - None of these
- Which mirror can be used in street reflector mirrors near the red light ?
 - Plane mirror
 - Concave mirror
 - Convex mirror
 - Parabolic mirror

12. Two plane mirrors make an angle of 40 degree with each other with object placed symmetrically between them, the number of images formed will be
(a) 8 (b) 10 (c) 9 (d) 6
13. A ball is thrown vertically upwards with a speed of 22 m/s and it reaches the top of the journey to acquire the maximum height (h). It total time of ball in air is 4.5 seconds the find the value of h.
(a) 22.3 m (b) 25 m (c) 24.4 m (d) 24.7 m
14. Boy of 75 kg mass is running with velocity 3 m/s. He jumps over a stationary cart of 5 kg while running. Find velocity of cart after jumping of boy.
(a) 2 m/s (b) 2.5 m/s (c) 2.8 m/s (d) 1.6 m/s
15. An object 2 m long is placed in front of a concave mirror and makes a real magnified image of size 3 m. The focal length of mirror is 30 cm. The distance between the object and image is
(a) 30 cm (b) 25 cm (c) 20 cm (d) 50 cm

CHEMISTRY

16. If pressure is doubled for a fixed mass of a gas at constant temperature, its volume will become
(a) 4 times (b) 1/2 times (c) 2 times (d) No change
17. Which of the following elements contains only two electrons in the outermost shell ?
(a) Helium (b) Beryllium (c) Magnesium (d) All of these
18. Choose the incorrect pair
(a) 13 K = -260°C (b) Absolute zero = -273°C
(c) Standard pressure = 760 mm of Hg (d) K = 279 + °C
19. Choose the incorrect pair
(a) H₂SO₄ - 96 u (b) HNO₃ - 63 u (c) H₂CO₃ - 62 u (d) H₃PO₄ - 98 u
20. Which of the following molecular formula is correct ?
(a) Ca₃(PO₄)₂ (b) NaCO₃ (c) (NH₄)₃SO₄ (d) Mg(SO₄)₂
21. Which of the following shows the electronic configuration of Ca²⁺ ?
(a) He (b) F⁻ (c) Ar (d) Mg²⁺
22. Select the pair of Isobars from the following :-
 $^{37}_{17}\text{A}$, $^{35}_{17}\text{B}$, $^{37}_{18}\text{C}$, $^{36}_{18}\text{D}$, $^{38}_{19}\text{E}$
(a) A and B (b) A and C (c) C and E (d) C and D
23. According to which atomic model positive charge is thinly spread throughout the atom
(a) Bohr's (b) Dalton's
(c) Rutherford's (d) Thomson's model of atom
24. Quantum theory of radiation was proposed by
(a) Pauli (b) Plank (c) Hund (d) Aufban

25. A trinegative ion of an element has 8 electrons in its M shell. The atomic number of the element is
(a) 15 (b) 18 (c) 20 (d) 16
26. If the formula of a metallic nitrate is $M(\text{NO}_3)_2$, then what will be the formula of the nitride of that metal ?
(a) MN_2 (b) M_3N_2 (c) M_2N (d) $\text{M}(\text{NO}_2)_3$
27. Which among the following pairs are having different number of valence electrons ?
(a) Ns^+ , Al^{3+} (b) P^{3-} , Ar (c) Mg, Ar (d) O^{2-} , F^-
28. The high diffusibility of gases is due to
(a) High intermolecular force of attraction
(b) High kinetic energy of molecules
(c) Restricted translatory motion in upward direction
(d) All of above
29. The ratio by mass of sulphur and oxygen in sulphur dioxide
(a) 1 : 2 (b) 2 : 1 (c) 1 : 1 (d) 1 : 4
30. Discoveries of Isotopes and Isobars contradicts some of the postulates of ____ atomic theory
(a) Bohr's (b) Dalton's (c) Modern (d) Thomson's

BIOLOGY

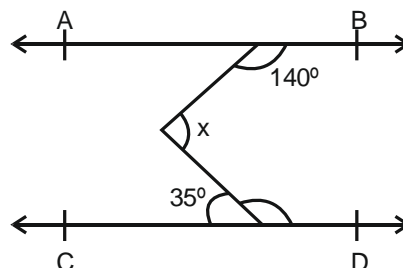
31. The endomembrane system does not include which of the following ?
(a) Lysosome (b) Vacuole (c) Golgi complex (d) Peroxisome
32. Which of this is/are examples of an organ containing a smooth muscle
(a) Iris of eye (b) Bronchi only (c) Uterus only (d) All of these
33. This structure of the plant cell is non living
(a) Nucleus (b) Cell wall (c) Cytoplasm (d) Mitochondria
34. This cell organelle does not contain DNA
(a) Nucleus (b) Mitochondria (c) Lysosomes (d) Chloroplast
35. The main difference between human cheek cell and onion peel cells is
(a) Presence of cell wall in onion peel cells
(b) Presence of mitochondria in onion peel cells
(c) Presence of endoplasmic reticulum in cheek cell
(d) Absence of the plasma membrane in cheek cells
36. The only connective tissue without fibroblast
(a) Areolar connective tissue (b) Bone
(c) Cartilage (d) Blood
37. In these tissue cells, Lacunae are enclosed
(a) Cartilage (b) Bone tissue (c) Both (a) & (b) (d) Muscular tissue

38. Mast cells are linked to
 (a) Neural tissue (b) Areolar connective tissue
 (c) Endocrine gland (d) Endocrine glands
39. Animal cells are interconnected by
 (a) Desmosomes (b) Cell wall
 (c) Plasmodesmata (d) Plasma membrane
40. Antibodies are secreted by which of the cells of connective tissue
 (a) Adipose cells (b) reticular cells (c) plasma cells (d) mast cells
41. Ligament is
 (a) Modified yellow elastic fibrous tissue
 (b) Inelastic white fibrous tissue
 (c) Modified white fibrous tissue
 (d) None of the above
42. Which of the following tissues has the most regenerative power ?
 (a) Epithelial tissue (b) Connective tissue (c) Neural tissue (d) Muscular tissue
43. Which cellular structure is responsible for packaging and transporting proteins ?
 (a) Chloroplast (b) Nucleus (c) Golgi apparatus (d) Lysosomes
44. Find out the incorrect sentence
 (a) Parenchymatous tissues have intercellular spaces
 (b) Collenchymatous tissues are irregularly thickened at corners
 (c) Apical and intercalary meristems are permanent tissues
 (d) Meristematic tissues in their early stage, lack vacuoles
45. The cells cork are dead and have a chemical in their walls that makes them impervious to gases and water. The chemical is
 (a) Lignin (b) Suberin (c) Cutin (d) Wax

MATHEMATICS

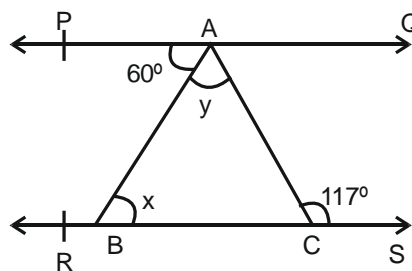
46. $\frac{1}{1+x^{(b-1)}+x^{(c-a)}} + \frac{1}{1+x^{(a-b)}+x^{(c-b)}} + \frac{1}{1+x^{(b-c)}+x^{(a-c)}} = ?$
 (a) 0 (b) 1 (c) x^{a-b-c} (d) None of these
47. If $\frac{x}{y} + \frac{y}{x} = -1$ ($x, y \neq 0$), what is the value of $x^3 - y^3$?
 (a) 1 (b) -1 (c) $1/2$ (d) 0
48. If $A : B = 3 : 4$ and $B : C = 6 : 7$, then $A : C$ is
 (a) $9 : 14$ (b) $3 : 7$ (c) $4 : 7$ (d) $7 : 3$
49. If $x = \frac{1}{1+\sqrt{2}}$ then the value of $x^2 + 2x + 3$:
 (a) 3 (b) 0 (c) 4 (d) 1

50. 40% of greater number is equal to 60% of the smaller. If their sum is 150, then the greater number is
 (a) 70 (b) 60 (c) 90 (d) 80
51. If 15% of Y is same as 21% of Z, then 12.5% of Y is equal to what percent of Z ?
 (a) 20% (b) 17.5% (c) 13% (d) 9.5%
52. The value of $4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}}$
 (a) 1/8 (b) 2/8 (c) 3/8 (d) 5/8
53. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percent is
 (a) 25% (b) $33\frac{1}{3}\%$ (c) 50% (d) $66\frac{2}{3}\%$
54. If 8% of x = 4% of y, then 20% of x is
 (a) 10% of y (b) 16% of y (c) 80% of y (d) None of these
55. If $a^x = b$, $y^y = c$ and $c^z = a$, then the value of x y z is
 (a) 0 (b) 1 (c) $\frac{1}{abc}$ (d) abc
56. In figure, AB // CD, the value of x is



- (a) 35° (b) 40° (c) 60° (d) 75°
57. If two parallel lines are intersected by a transversal, then pairs of interior angles are;
 (a) Equal (b) Complementary
 (c) Supplementary (d) Sum of the two angles is 360°
58. $x = 15$ is a straight line
 (a) intersecting both the axes (b) parallel to y axis
 (c) parallel to x-axis (d) passing through the origin
59. The value of x for which $15x^2 - 7x - 36 = 0$ are
 (a) $5/9, -4/3$ (b) $9/5, -4/3$ (c) $9/5, -3/4$ (d) None of these
60. The decimal expansion of $\sqrt{5}$ is
 (a) Finite decimal (b) 2.2360
 (c) non terminating non recurring (d) both (b) and (c)

61. For what value of t is $x = 2/3$ a solution of $7x^2 + tx - 3 = 0$
 (a) -6 (b) -1/6 (c) 1/6 (d) 6
62. A man goes 15 m due east and then 8m due north. How far is he from the starting point ?
 (a) 16 m (b) 23 m (c) 17 m (d) 279 m
63. If $a - b$, $b - c$ are the roots of $ax^2 + bx + c = 0$ then the value of $\frac{(a - b)(b - c)}{c - a}$ is
 (a) b/c (b) c/b (c) ab/c (d) c/ab
64. If $x = 4 + \sqrt{15}$ then $x^3 - \frac{1}{x^3}$ is
 (a) $126\sqrt{15}$ (b) $15\sqrt{126}$ (c) $26\sqrt{15}$ (d) $15\sqrt{26}$
65. In figure, $PQ \parallel RS$, then $x - y$ is



- (a) 3° (b) 4° (c) 5° (d) 6°

MENTAL ABILITY

66. Two bus tickets from city A to B and three tickets from city A to C cost Rs 77 and three tickets from city A to B and two tickets from city A to C cost Rs 73. What are the A and fro cities B and C from A ?
 (a) Rs 4, Rs 23 (b) Rs 15, Rs 14 (c) Rs 23, Rs 13 (d) Rs 13, Rs 17
67. In a certain code language, 3a, 2b, 7c mans Truth is Eternal, 7c, 9a, 8b, 3a means Enmit is not Eternal and 9a, 4d, 2b, 8b means Truth does not Perish. Which of the following means Enmity' in that language ?
 (a) 8b (b) 3a (c) 3b (d) 8a
68. If in certain code, STUDENT is written as RSTEDMS, then how would TEACHER be written in the same code ?
 (a) SZZDGEQ (b) SZDDGEQ (c) SDZCGDQ (d) SDZDGDQ
69. P, Q, R, S, 7; U, V & W are the family members. Q is the sister V and V is the brother of R. T is the wife of P, whose father is W. S is the husband of Q and U is the son of V. P is the father of Q.
 (a) Son (b) Grandfather (c) Grandson (d) Nephew
70. A B C D E F G H I J K L M N O P Q R S T U V W X Y Z.
 Which letter in this alphabet is the lighth letter to the right of the letter and which is tenth to the left of the last but one letter of the alphabet ?
 (a) W (b) I (c) X (d) H

71. In a row of boys, If A who is the 10th from the left and B who is 9th from the right interchange their positions, A becomes 15th from the left. How many boys are there in the row ?
(a) 31 (b) 23 (c) 28 (d) 21
72. A girl introduced a boy as the son of the daughter of the father of her uncle. The boy is girl's
(a) Uncle (b) Brother (c) Son-in-law (d) Grandfather
73. Choose the word which is least like the others word in a group ?
(a) Mechanic (b) Blacksmith (c) Mason (d) Engineer
74. A man is facing north-west. He turns 90° in the clockwise direction, the 180° in the anticlockwise direction and then 90° in the same direction. Which direction is he facing now ?
(a) South-west (b) South (c) South-east (d) East
75. Raj walked 20 m towards north. Then he turned right and walks 30 m. Then he turns right and walks 35m. Then he turns left and walks 15m. Finally he turns left and walks 15m. In which direction and how many metres is he from the starting position ?
(a) 45 m West (b) 30 m East (c) 30 m West (d) 45 m East
76. If you write down all the numbers from 1 to 100, then how many times do you write 3 ?
(a) 21 (b) 20 (c) 22 (d) 19
77. Arrange the words given below in a meaningful sequence
(1) Presentation
(2) Recommendation
(3) Arrival
(4) Discussion
(5) Introduction
(a) 5, 3, 4, 1, 2 (b) 3, 5, 1, 4, 2 (c) 3, 5, 4, 2, 1 (d) 5, 3, 1, 2, 4
78. Ravi's mother is the only daughter of Archana's father. How is Archana's husband related to Ravi ?
(a) Father (b) Uncle (c) Grandfather (d) Brother
79. This question is based upon the information given below. Study the information and then choose the correct answer. Five friends A, B, C, D and E are sitting on a bench.
(1) A is sitting next to B
(2) C is sitting next to D
(3) D is not sitting with E
(4) E is on the left end of the bench
(5) C is on second position from the right
(6) A is on the right side of B and to the right side of E
(7) A and C are sitting together, wher eis A sitting ?
(a) Between B and D (b) Between C and E
(c) Between D and C (d) Between B and C
80. A clock is started at noon by 10 min past 5, the hour hand has turned through
(a) 145° (b) 150° (c) 155° (d) 160°

ANSWER KEY

<u>PHSICS</u>	<u>CHEMISTRY</u>	<u>BIOLOGY</u>	<u>MATHEMATICS</u>	<u>MENTAL ABILITY</u>
1. (A)	16. (B)	31. (D)	46. (B)	66. (D)
2. (B)	17. (D)	32. (D)	47. (D)	67. (A)
3. (C)	18. (D)	33. (B)	48. (A)	68. (D)
4. (C)	19. (A)	34. (C)	49. (C)	69. (C)
5. (C)	20. (A)	35. (A)	50. (C)	70. (A)
6. (A)	21. (C)	36. (D)	51. (B)	71. (B)
7. (D)	22. (B)	37. (C)	52. (A)	72. (B)
8. (A)	23. (D)	38. (B)	53. (C)	73. (A)
9. (C)	24. (B)	39. (A)	54. (A)	74. (C)
10. (B)	25. (A)	40. (C)	55. (B)	75. (D)
11. (C)	26. (B)	41. (A)	56. (D)	76. (B)
12. (A)	27. (C)	42. (A)	57. (C)	77. (B)
13. (D)	28. (B)	43. (C)	58. (B)	78. (A)
14. (C)	29. (C)	44. (C)	59. (B)	79. (D)
15. (B)	30. (B)	45. (B)	60. (D)	80. (C)
			61. (B)	
			62. (C)	
			63. (B)	
			64. (A)	
			65. (A)	