

Paper Code:09F-2611-SP-A

Class – IX

SAMPLE PAPER

Time: 2 Hour

M. Marks: 300

General Instructions:

1. Answers have to be marked on the OMR sheet.
2. The question paper consists of 75 multiple choice questions (single correct option) divided into five sections.
Section – A contains 15 questions (Q1 to Q15) of Physics.
Section – B contains 15 questions (Q16 to Q30) of Chemistry.
Section – C contains 15 questions (Q31 to Q45) of Mathematics.
Section – D contains 15 questions (Q46 to Q60) of Mental Ability.
Section – E contains 15 questions (Q61 to Q75) of Biology.
3. Each question carries +4 marks for correct answer and –1 mark for wrong answer.
4. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.
5. Blank papers, clip boards, log tables, slide rule, calculator, cellular phones, pagers and electronic devices, in any form, are not allowed.
6. Write your Name, Father Name, Class, MSAT Roll No. and Date in the space provided at the bottom of this sheet.

NAME: _____

FATHER NAME: _____

CLASS: _____

MSAT ROLL NO: _____

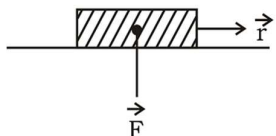
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**PHYSICS**

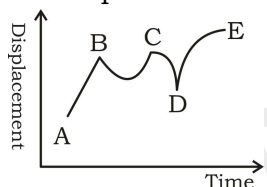
1. A car is accelerating uniformly as it passes two checkpoints which are 30 m apart. The time taken between checkpoints is 4 seconds and the car's speed at the first checkpoint is 5 m/s. The car's speed at second checkpoint is
(A) 10 m/s (B) 15 m/s
(C) 20 m/s (D) 25 m/s
2. A car travels $\frac{1}{3}$ rd distance on a straight road with a velocity of 10 km/hr, next $\frac{1}{3}$ rd with velocity 20 km/hr and the last $\frac{1}{3}$ rd with velocity 60 km/hr. What is the average velocity of the car in the whole journey?
(A) 4 km/hr (B) 6 km/hr
(C) 12 km/hr (D) 18 km/hr
3. The splash is heard after 4.22 sec after the stone is dropped into a well of depth 78.4 m. The velocity of sound is (take $g = 9.8 \text{ ms}^{-2}$)
(A) 342 m/s (B) 372 m/s
(C) 392 m/s (D) 356 m/s
4. A car is moving with a constant speed of 70 km/h. Which of the following statements is correct?
(A) The acceleration of the car is definitely zero.
(B) The car has an acceleration only if it is moving along a curved path.
(C) The car may have an acceleration even if it is moving along a straight path.
(D) The car may not have an acceleration even if it moving along a curved path.
5. When a bus starts suddenly, the passengers standing inside leans backwards. This is an example of
(A) Newton's first law of motion
(B) Newton's second law of motion
(C) Newton's third law of motion
(D) Law of conservation of momentum
6. A force of 6 N acts on a mass of 1 kg which acquires a velocity 30 m/s from rest. The time for which the force acts is
(A) 26 sec (B) 6 sec
(C) 5 sec (D) 2 sec
7. The force acting on a body when its momentum changes by 10 kg ms^{-1} , in 5 seconds is _____ N.
(A) 15 (B) 2
(C) 5 (D) 10
8. The linear momentum p of a body having mass m and kinetic energy E is given by
(A) $p = \sqrt{2mE}$ (B) $p = \sqrt{\frac{E}{2m}}$
(C) $p = \sqrt{\frac{2m}{E}}$ (D) $p = \frac{E^2}{2m}$
9. A ball A is dropped from the top of a tower 44.1 m high. Two seconds later another ball B is thrown in the downwards direction from same point. Both the balls reach the ground together. Find the speed with which the ball B is thrown.
(A) 30.2 m/s (B) 35.2 m/s
(C) 39.2 m/s (D) 28.2 m/s

Space for rough work

10. The force F is acting on an object of mass m . The direction of displacement and force on the object is shown by an arrow to the right side and downward side respectively. Work done by the force will be:



- (A) positive
(B) negative
(C) zero
(D) either positive or negative
11. The figure given below shows the displacement plotted time for a particle. In which regions the force acting on the particle is zero?



- (A) AB (B) BC
(C) CD (D) DE
12. When a constant force is applied to a body, it moves with uniform:
(A) Acceleration (B) Velocity
(C) Speed (D) Momentum
13. $\text{kg m}^2 \text{s}^{-2}$ is the unit of
(A) Force (B) Energy
(C) Power (D) Momentum
14. A body is at rest. It may possess.
(A) energy (B) Momentum
(C) Speed (D) Velocity

15. Potential energy of your body is minimum when you
(A) Are standing
(B) Are sitting on the chair
(C) Are sitting on the ground
(D) Lie down on the ground

CHEMISTRY

16. When a beam of light is passed through a colloidal solution, it gets
(A) reflected (B) absorbed
(C) scattered (D) refracted
17. Mixture of sand and camphor can be purified by
(A) distillation (B) filtration
(C) sedimentation (D) sublimation
18. A strip of magnesium metal is burnt in air. Which of the following statement is correct
(A) A physical change occurs and a yellow light is observed
(B) A physical change occurs and magnesium starts melting
(C) A chemical change occurs and a dazzling light is produced
(D) A physical change occurs and a lot of black smoke is produced
19. Some matter and their groups are given in column P and Q respectively.

(P)	(Q)
a. Air	i. Element
b. Oxygen	ii. Mixture
c. Copper sulphate	iii. Base
d. Sodium hydroxide	iv. Salt

The correct option is

- (A) a-ii, b-iv, c-I, d-iii
(B) a-iv, b-iii, c-ii, d-i
(C) a-i, b-ii, c-iii, d-iv
(D) a-ii, b-I, c-iv, d-iii

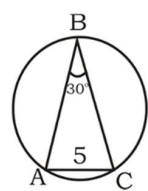
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20. Which one of the following is not a solution?
(A) HCl reagent
(B) Brass
(C) HCHO + water
(D) Kerosene + water
21. The Brownian motion in colloidal solution is due to:
(A) temperature fluctuation
(B) attraction or repulsion between charged colloidal particles
(C) Bombardment of molecules of dispersion medium on the colloidal particle
(D) None of the above
22. What type of colloidal system is fog?
(A) Gas in liquid
(B) Liquid in gas
(C) Liquid in liquid
(D) Solid in gas
23. Homogeneous mixture among the following is:
(A) milk (B) cloud
(C) Smoke (D) air
24. Which of the following statements is true?
(A) A proton is 1837 times heavier than an electron
(B) A proton is $1/1837$ times heavier than an electron
(C) A proton is $1/1837$ times lighter than an electron
(D) Proton has the same mass as an electron
25. An isotone of $^{76}_{32}\text{Ge}$ is –
(A) $^{77}_{32}\text{Ge}$ (B) $^{77}_{33}\text{As}$
(C) $^{77}_{34}\text{Se}$ (D) $^{79}_{34}\text{Se}$
26. Which of the following is correct electronic configuration of argon?
(A) 2, 8 (B) 2, 8, 8
(C) 2, 8, 1 (D) 8, 2, 8
27. Structure of nuclei of three atoms A, B and C are given below
A has 90 protons and 146 neutrons
B has 92 protons and 146 neutrons
C has 90 protons and 148 neutrons
Based on the above data which of these atoms are isotopes and which are isobars?
(A) A and C are isotopes B and C are isobars
(B) A and B are isotopes A and C are isobars
(C) B and C are isobars A and B are isotopes
(D) A and C are isotopes A and B are isobars
28. Which statement is correct about a proton?
(A) It is nucleus of deuterium
(B) It is ionised hydrogen molecule
(C) It is ionised hydrogen atom
(D) It is α -particle
29. Which of the following pair is isoelectronic?
(A) Na^+ , Ar (B) Mg^{++} , Ca^{++}
(C) K^+ , Cl^- (D) Na^+ , K^+
30. The ascending order of (charge/mass) value for electron (e), proton(p), neutron(n) and alpha(α)particle is
(A) e, p, n, α (B) n, p, e, α
(C) n, α , p, e (D) n, p, α , e

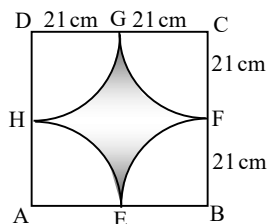
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MATHEMATICS

31. The decimal expansion of π is
 (A) A whole number
 (B) Terminating
 (C) Non-terminating but repeating
 (D) Non-terminating non-repeating
32. If $2^{x-1} + 2^{x+1} = 5$, then the value of x is
 (A) 1 (B) 2
 (C) 3 (D) 4
33. If $x + \frac{1}{x} = 3$, then the value of $x^6 + \frac{1}{x^6}$ is
 (A) 927 (B) 114
 (C) 364 (D) 322
34. Which one of the following is a factor of the expression $(a + b)^3 - (a - b)^3$?
 (A) a (B) $3a^2 - b$
 (C) $2b$ (D) $(a + b)(a - b)$
35. If $x + y = 1$ then $x^3 + y^3 + 3xy =$
 (A) 0 (B) 1
 (C) 2 (D) None of these
36. The abscissa of a point is distance of that point from:
 (A) X-axis (B) Y-axis
 (C) Origin (D) None of these
37. If both co-ordinates of any point are positive then that point will lie in:
 (A) First quadrant
 (B) Second quadrant
 (C) Third quadrant
 (D) Fourth quadrant
38. The sum of three numbers is 98. If the ratio of the first to the second term is $\frac{2}{3}$ and the ratio of the second of the third is $\frac{5}{8}$, then the second number is
 (A) 15 (B) 20
 (C) 30 (D) 32
39. Mother was at the age of 30 when the son was born. Now the sum of ages of mother and son is 40 years. What would be the age of son after 10 years?
 (A) 5 Years (B) 10 Years
 (C) 15 Years (D) 20 Years
40. In a circle of radius 10 cm, the length of chord whose distance is 6 cm from the centre is:
 (A) 4 cm (B) 5 cm
 (C) 8 cm (D) 16 cm
41. In the diagram the circle contains the vertices A, B, C of triangle ABC. Now $\angle ABC$ is 30° and the length of AC is 5. The diameter of the circle is:
 (A) $5\sqrt{3}$
 (B) 8
 (C) 10
 (D) $5\sqrt{5}$
- 
42. If the sides of a triangle are doubled, then its area:
 (A) Remains the same
 (B) Becomes doubled
 (C) Becomes three times
 (D) Becomes four times

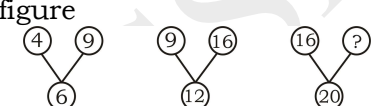
Space for rough work

43. In figure, ABCD is square of side 42 cm. HEA, EFB, FGC and GHD are four quadrants of circles, then shaded area is:



- (A) 374 cm^2
 (B) 372 cm^2
 (C) 376 cm^2
 (D) 378 cm^2
44. A number is selected from numbers 1 to 27. The probability that it is prime is
- (A) $\frac{2}{3}$ (B) $\frac{1}{6}$
 (C) $\frac{1}{3}$ (D) $\frac{2}{9}$
45. In a single throw of a pair of dice, the probability of getting the sum a perfect square is
- (A) $\frac{1}{18}$
 (B) $\frac{7}{36}$
 (C) $\frac{1}{6}$
 (D) $\frac{2}{9}$

MENTAL ABILITY

46. $100, 50, 33\frac{1}{3}, 25, 20, ?$
- (A) 15 (B) $16\frac{1}{3}$
 (C) $17\frac{2}{3}$ (D) $16\frac{2}{3}$
47. Find the missing term in the given figure
- 
- (A) 60 (B) 50
 (C) 21 (D) 25
48. Arun said, "this girl is the wife of the grandson of my mother." Who is arun to the girl?
- (A) Father (B) Grandfather
 (C) Husband (D) Father-in-law
49. Pointing to a man Asha said, "His brother's father is the only son of my grand father". How Asha is related to the man.
- (A) Mother (B) Aunt
 (C) Sister (D) Daughter
50. Choose the alternative which is closely resembles the mirror image of the given combination.
- MALAYALAM**
- (1) MALAYALAM (2) MAJAYAJAM
 (3) MVLAYALAM (4) MAGAYAGAM
- (A) 1 (B) 2
 (C) 3 (D) 4
51. Choose the alternative which is closely resembles the mirror image of the given combination.
- EFFECTIVE**
- (1) EVITCEFFE (2) EVITCEFFE
 (3) EFTICEFFE (4) EVITCEFFE
- (A) 1 (B) 2
 (C) 3 (D) 4

Space for rough work

52. If A stands for +, B stands for −, C stands for ×, then what is the value of (10C4) A (4C4) B 6
 (A) 60 (B) 50
 (C) 56 (D) 20

53. If A stands for ÷, B stands for ×, C stands for +, and D stands for −, then what is the value of 18B12A4C5D6 is _____
 (A) 36 (B) 59
 (C) 53 (D) 70

54. 2, 3, 5, 7, ?
 (A) 9 (B) 10
 (C) 11 (D) 14

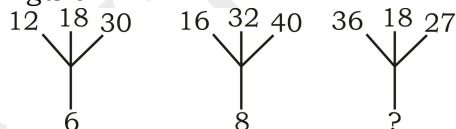
55. 210, 120, ?, 24, 6, 0
 (A) 64 (B) 48
 (C) 35 (D) 60

56. Find the missing term in the given figure

17	11	19
12	13	16
25	4	?

- (A) 36 (B) 9
 (C) 25 (D) 64

57. Find the missing term in the given figure



- (A) 18 (B) 12
 (C) 9 (D) 6

58. X, U, S, P, N, K, I, ?
 (A) J (B) K
 (C) M (D) F

59. X, A, D, G, J, ?

- (A) N
 (B) O
 (C) M
 (D) P

60. If 'P' means '+', 'R' means '×', 'S' means '−', 'T' means '÷' then what is the value of 5 R 9 P 7 S 9 T 3 P 6 = ?

- (A) 54
 (B) 128
 (C) 59
 (D) 55

BIOLOGY

61. Blood cell without nucleus are

- (A) Red blood corpuscles
 (B) White blood corpuscles
 (C) Blood platelets
 (D) None of these

62. The control centre of the cell is:

- (A) Mitochondria
 (B) Ribosome
 (C) Nucleus
 (D) Cytoplasm

63. The following structure is NOT found in plant cells

- (A) vacuole
 (B) nucleus
 (C) centriole
 (D) Ribosome

64. Size and Shape of a cell depends upon

- (A) Their function
 (B) Their number
 (C) Their location
 (D) Their Origin

Space for rough work

65. The plasma membrane consists mainly of
- (A) Proteins embedded in a carbohydrate bilayer
- (B) Phospholipids embedded in a protein bilayer
- (C) Proteins embedded in a phospholipid bilayer
- (D) Proteins embedded in a polymer of glucose molecules

66. Find out the correct match from the following:

	I	II	III
(1)	Hypotonic cell	Endosmosis	Turgidity increase
(2)	Hypertonic cell	Exosmosis	Flaccid condition
(3)	Hypertonic cell	Endosmosis	Turgidity increase

- (A) (2) and (3) (B) (1) and (2)
- (C) Only (3) (D) Only (2)
67. The fluid content inside the cell, excluding nucleus, is called:
- (A) Cytoplasm (B) Nucleoplasm
- (C) Protoplasm (D) Vacuole
68. Endoplasmic Reticulum is absent in:
- (A) Animal Cells
- (B) Prokaryotes
- (C) Plant cells
- (D) Protista and fungi
69. Which of the following is not correct for meristematic tissue?
- (A) Primary cell wall is present
- (B) Ergastic substances are absent
- (C) They have dense cytoplasm
- (D) They have prominent and small nucleus

70. Without which corpuscles blood clotting is not possible?

(A) RBCs (B) Thrombocytes

(C) Plasma cells (D) WBCs

71. The main function of sclerenchyma is to help in the —

(A) conduction of food

(B) synthesis of food

(C) exchange of gases

(D) mechanical support

72. Which tissue makes up the husk of coconut?

(A) Parenchyma (B) Collenchyma

(C) Sclerenchyma (D) Phloem

73. Sieve tube is a

(A) living functional element with a nucleus.

(B) dead functional element with a nucleus.

(C) living functional element without a nucleus

(D) living non-functional element without a nucleus

74. Skeletal muscles are

(A) striated and voluntary

(B) unstriated and voluntary

(C) striated and involuntary

(D) unstriated and involuntary

75. Which cell organelle is known as the “powerhouse of the cell”?

(A) Nucleus

(B) Chloroplast

(C) Ribosome

(D) Mitochondria

Space for rough work

ANSWER KEY

PHYSICS		CHEMISTRY		MATHEMATICS		MENTAL ABILITY		BIOLOGY	
Q. NO.	Ans.	Q. NO.	Ans.	Q. NO.	Ans.	Q. NO.	Ans.	Q. NO.	Ans.
1.	A	16.	C	31.	D	46.	D	61.	A
2.	D	17.	D	32.	A	47.	D	62.	C
3.	D	18.	C	33.	D	48.	D	63.	C
4.	B	19.	D	34.	C	49.	C	64.	A
5.	A	20.	D	35.	B	50.	B	65.	C
6.	C	21.	C	36.	B	51.	A	66.	B
7.	B	22.	B	37.	A	52.	C	67.	A
8.	A	23.	D	38.	C	53.	C	68.	B
9.	C	24.	A	39.	C	54.	C	69.	D
10.	C	25.	B	40.	D	55.	B	70.	B
11.	A	26.	B	41.	C	56.	B	71.	D
12.	A	27.	A	42.	D	57.	C	72.	C
13.	B	28.	C	43.	D	58.	D	73.	C
14.	A	29.	C	44.	C	59.	C	74.	A
15.	D	30.	C	45.	B	60.	D	75.	D