

SAMPLE PAPER

CLASS : 9



Total Questions : 70

Duration : 2 Hrs.

## Paper Pattern

Section	(A) Physics	(B) Chemistry	(C) Biology	(D) Mathematics	(E) Logical Reasoning & IQ
Number of Questions	10	10	10	30	10

**Marking Scheme:** +4 For Correct Answer (One mark will be deducted for wrong answer)

## Syllabus

Section A – • Motion • Force

Section B – • Matter in our surroundings • Is Matter Around us pure

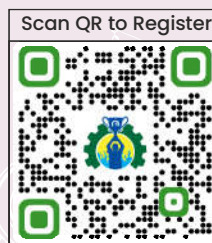
Section C – • The Fundamental Unit of Life – Cell • Tissues

Section D – • Number System • Polynomials • Coordinate Geometry • Linear Equations in Two Variables • Lines and Angles • Triangles

Section E – • Series : Number, Alphabet and Letter repeating series • Direction sense • Ranking and Ordering • Mathematical Operation • Puzzle  
• Data Sufficiency

## Instructions :

- This Booklet is your **Question Paper**. DO NOT break seal of Booklet until the invigilator instructs to do so.
- The Answer Sheet is provided to you separately which is a machine readable **Optical Response Sheet (ORS)**. You have to mark your answer in the ORS by darkening bubble, as per your answer choice, by using **Black/Blue** ball point pen only.
- If you are found involved in cheating or disturbing others then your ORS will be cancelled.
- Do not put any stain on ORS and hand it over back properly to the invigilator.
- You can take along the question paper after test over.



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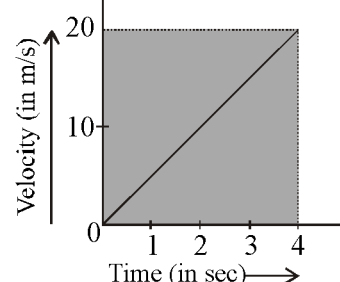
**PART I : PHYSICS**

This section contains 10 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

1. A force of 5 N is applied on body of mass M produces an acceleration of  $10 \text{ m/s}^2$ . The same force when applied on another body of mass 'm' produces an acceleration of  $20 \text{ m/s}^2$ . Find the acceleration produced by the same force when both the mass are combined together :

- (A)  $10 \text{ m/s}^2$  (B)  $6.6 \text{ m/s}^2$   
 (C)  $0.75 \text{ m/s}^2$  (D)  $50 \text{ m/s}^2$

2. The velocity-time graph of a ball moving on the surface of a floor is given below :  
 Calculate the force acting on the ball, if mass of the ball is 200 g :



- (A) 0.5 N  
 (B) 1 N  
 (C) 1.5 N  
 (D) 2 N

3. Fill in the blanks with the correct combination of terms.

If an object of mass P is accelerated uniformly from a velocity of Q to R in S then magnitude of the force exerted on the object is T :

- (A) P-100 kg, Q-2 m/s, R-8 m/s, S-6 s, T-50 N  
 (B) P-100 kg, Q-5 m/s, R-8 m/s, S-6 s, T-50 N  
 (C) P-1000 kg, Q-5 m/s, R-8 m/s, S-6 s, T-50 N  
 (D) P-100 kg, Q-5 m/s, R-8 m/s, S-5 s, T-50 N

4. A ball is dropped from the edge of a roof, it takes 1s to cross a window of height 7.9 m. Find the height of the roof above the top of the window : (take  $g = 9.8 \text{ m/s}^2$ )

- (A) 2.3 m (B) 1.25 m  
 (C) 3.6 m (D) 0.46 m

5. Which one of the following statements is incorrect?

- (A) The velocity of a body can change even if its acceleration is zero  
 (B) The displacement of a body has the same direction as that of its average velocity  
 (C) The direction of acceleration due to gravity is always vertically downward  
 (D) Motion of an ant on a floor along the edges is an example of translatory motion

6. A bullet of mass 20g moving with a speed of 120 m/s hits a thick muddy wall and penetrates into it. It takes 0.03 s to stop in the wall. Find the distance covered by the bullet in the wall?

- (A) 2.6 m (B) 3.6 m  
 (C) 1.8 m (D) 0.9 m



**PART II : CHEMISTRY**

This section contains 10 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

11. Match the column :

Column– I	Column – II
P. Matter	1. Solid, Liquid and Gas
Q. Solids	2. Causes cooling
R. Gases	3. Interparticle force of attraction is least
S. Evaporation	4. Rigid nature
T. States of Matter	5. Made of small particles

Code :

	P	Q	R	S	T
(A)	5	4	3	2	1
(B)	4	5	3	1	2
(C)	5	4	1	2	3
(D)	4	3	5	2	1

12. By which property are gases and liquids different from solid?

- (A) Volume (B) Mass  
(C) Conductivity (D) Fluidity

13. A liquid is kept in a China dish. The evaporation of the liquid can be accelerated :

- (A) By keeping the dish in the open (B) By blowing air into the liquid  
(C) By keeping the dish under a running fan (D) All the these

14. The forces of attraction between the particles of matter is maximum in :

- (A) Iron rod (B) Kerosene oil  
(C) Glycerine (D) Dry air

**(Que. 15 to 16)**

Paragraph -The phenomenon of change of liquid into vapours at any temperature below its boiling point is called evaporation. The rate of evaporation increases with increase in surface area, temperature, speed of wind and decrease in humidity. Evaporation in causes cooling due to decrease in average kinetic energy of the remaining liquid after the surface molecules leave. Lower the boiling point of the liquid, higher is its rate of evaporation.

15. Synthetic clothes are uncomfortable in summer because :
- (A) They absorb kinetic energy from air molecules  
(B) They do not let the sweat evaporate  
(C) They are highly porous  
(D) They are very thick
16. The water spilled on the floor evaporates faster than water in a glass due to :
- (A) Increase in surface area (B) Increase in temperature  
(C) Increase in humidity (D) Decrease in kinetic energy
17. What will be the mass/mass percentage of a solution containing 30 gm of common salt in 220 gm of water?
- (A) 3% (B) 1.2%  
(C) 12% (D) 22%
18. Which process is used to separate a mixture of two miscible liquids A and B having boiling points  $56^{\circ}\text{C}$  and  $65^{\circ}$  respectively?
- (A) Distillation (B) Fractional distillation  
(C) Sublimation (D) Steam distillation.
19. Which one of the following is solution :
- (A) Soil (B) Aerosols  
(C) Coal (D) Soda-water
20. Which of the following pairs does not contain both elements?
- (A) Carbon, silicon (B) Helium, nitrogen  
(C) Bronze, zinc (D) Copper, silver

**PART III : BIOLOGY**

*This section contains 10 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.*

21. The function of the centrosome is :
- (A) Formation of spindle fibres (B) Osmoregulation  
(C) Secretion (D) Protein synthesis
22. The infoldings of the inner membrane of mitochondria are known as :
- (A) Stroma (B) Grana  
(C) Cristae (D) Oxysome
23. Multinucleated structure is :
- (A) Skeletal Muscle (B) Cardiac Muscle  
(C) Smooth Muscle (D) All of the above



**PART IV : MATHEMATICS**

This section contains 30 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

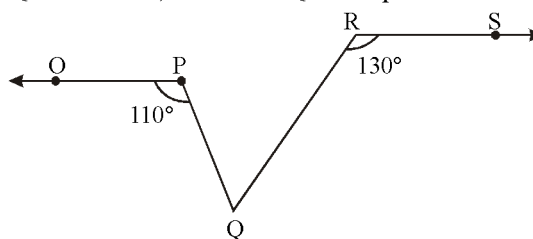
31. Which of the following is irrational?  
(A) 0.14 (B)  $0.14\overline{16}$   
(C)  $0.\overline{1416}$  (D) 0.4014001400014.....
32. Which one of the following is a polynomial?  
(A)  $\frac{x^2}{2} - \frac{2}{x^2}$  (B)  $\sqrt{2x} - 1$   
(C)  $x^2 + \frac{3x^{3/2}}{\sqrt{x}}$  (D)  $\frac{x-1}{x+1}$
33. Abscissa of all the points on the x-axis is :  
(A) 0 (B) 1  
(C) 2 (D) Any number
34. The linear equation  $2x-5y=7$  has :  
(A) A unique solution (B) Two solutions  
(C) Infinitely many solutions (D) No solution
35. The angles of a triangle are in the ratio 5 : 3 : 7 . The triangle is :  
(A) An acute angled triangle (B) A right triangle  
(C) An obtuse angled triangle (D) An isosceles triangle
36. Which of the following is not a criterion for congruence of triangles?  
(A) SAS (B) ASA  
(C) SSA (D) SSS
37. Every rational number is?  
(A) A natural number (B) A real number  
(C) An integer (D) A whole number
38. Degree of the polynomial  $4x^4 + 0x^3 + 0x^5 + 5x + 7$  is :  
(A) 4 (B) 5  
(C) 3 (D) 7
39. Ordinate of all points on the x-axis is :  
(A) 0 (B) 1  
(C) -1 (D) Any number

40. The equation  $2x + 5y = 7$  has a unique solution, if  $x, y$  are :
- (A) Natural numbers (B) Positive real numbers  
(C) Real numbers (D) Rational numbers
41. How many triangles can be drawn having its angles as  $53^\circ, 64^\circ$  and  $63^\circ$ ?
- (A) One (B) Two  
(C) Infinitely many (D) Can't say
42. In a  $\Delta PQR$ ,  $\angle R = \angle P$  and  $QR = 4$  cm and  $PR = 5$  cm. Then the length of  $PQ$  is :
- (A) 4 cm (B) 5 cm  
(C) 2 cm (D) 2.5 cm
43. The value of  $\frac{\sqrt{32} + \sqrt{48}}{\sqrt{8} + \sqrt{12}}$  is equal to :
- (A)  $\sqrt{2}$  (B) 2  
(C) 4 (D) 8
44. Zero of the zero polynomial is :
- (A) 0 (B) 1  
(C) Any real number (D) Not defined
45. The perpendicular distance of the point  $P(3, 4)$  from the  $y$  - axis is :
- (A) 3 (B) 4  
(C) 5 (D) 7
46. If one of the angles of a triangle is  $130^\circ$ , then the angle between the bisectors of the other two angles can be :
- (A)  $50^\circ$  (B)  $65^\circ$   
(C)  $145^\circ$  (D)  $155^\circ$
47. If  $D$  is a point on the side  $BC$  of a  $\Delta ABC$  such that  $AD$  bisects  $\angle BAC$ . Then :
- (A)  $BD = CD$  (B)  $BA > BD$   
(C)  $BD > BA$  (D)  $CD > CA$
48. If  $\sqrt{2} = 1.4142$  then  $\sqrt{\frac{\sqrt{2}-1}{\sqrt{2}+1}}$  is equal to :
- (A) 2.4142 (B) 5.8282  
(C) 0.4142 (D) 0.1718
49. One of the factors of  $(25x^2 - 1) + (1 + 5x)^2$  is :
- (A)  $5 + x$  (B)  $5 - x$   
(C)  $5x - 1$  (D)  $10x$
50. On plotting the points  $O(0, 0)$ ,  $A(3, 0)$ ,  $B(3, 4)$ ,  $C(0, 4)$  and joining  $OA$ ,  $AB$ ,  $BC$  and  $CO$ . Which of the following figure is obtained?
- (A) Square (B) Rectangle  
(C) Trapezium (D) Rhombus



51. In the figure, if  $OP \parallel RS$ ,  $\angle OPQ = 110^\circ$  and  $\angle QRS = 130^\circ$ ; then  $\angle PQR$  is equal to :

- (A)  $40^\circ$
- (B)  $50^\circ$
- (C)  $60^\circ$
- (D)  $70^\circ$



52. It is given that  $\triangle ABC \cong \triangle FDE$  and  $AB = 5\text{ cm}$ ,  $\angle B = 40^\circ$  and  $\angle A = 80^\circ$ , then which of the following is true?

- (A)  $DF = 5\text{ cm}$ ,  $\angle F = 60^\circ$
- (B)  $DF = 5\text{ cm}$ ,  $\angle E = 60^\circ$
- (C)  $DE = 5\text{ cm}$ ,  $\angle E = 60^\circ$
- (D)  $DE = 5\text{ cm}$ ,  $\angle D = 60^\circ$

53. The graph of  $y = 6$  is a line :

- (A) Parallel to x-axis at a distance 6 units from the origin
- (B) Parallel to y-axis at a distance 6 units from the origin
- (C) Making an intercept 6 on the x-axis
- (D) Making an intercept 6 on both axis

54. If we multiply or divide both sides of a linear equation with a non-zero number, then the solution of the linear equation:

- (A) Changes
- (B) Remains the same
- (C) Only changes in case of multiplication
- (D) Only changes in case of division

55. The value of  $(256)^{0.16} \times (256)^{0.09}$  is :

- (A) 4
- (B) 16
- (C) 64
- (D) 256.25

56. Which of the following is a factor of  $(x + y)^3 - (x^3 + y^3)$ ?

- (A)  $x^2 + y^2 + 2xy$
- (B)  $x^2 + y^2 - xy$
- (C)  $xy^2$
- (D)  $3xy$

57. If the coordinates of the two points are  $P(-2, 3)$  and  $Q(-3, 5)$ , then (Abscissa of P) – (Abscissa of Q) is :

- (A) -5
- (B) 1
- (C) -1
- (D) -2

58. The equation  $x = 7$ , in two variables can be written as :

- (A)  $1.x + 1.y = 7$
- (B)  $1.x + 0.y = 7$
- (C)  $0.x + 1.y = 7$
- (D)  $0.x + 0.y = 7$

59. Angles of a triangle are in the ratio 2 : 4 : 3. The smallest angle of the triangle is :

- (A)  $60^\circ$
- (B)  $40^\circ$
- (C)  $80^\circ$
- (D)  $20^\circ$

60. If two sides of a triangle are of lengths 5 cm and 1.5 cm, then the length of third side of triangle cannot be :

- (A) 3.6 cm
- (B) 4.1 cm
- (C) 3.8 cm
- (D) 3.4 cm

**PART V : LOGICAL REASONING & IQ**

*This section contains 10 Multiple Choice Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.*

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61. Find the missing term

1, 9, 25, 49, ?, 121

- (A) 64 (B) 81  
(C) 91 (D) 100

62. Find the next term

AI, BJ, CK, ?

- (A) DL (B) DM  
(C) GH (D) LM

63. The door of Aditya's house faces the east from the back side of his house, he walks straight 50 m, then turns to the right and walks 50 m again. Finally, he turns to left and stops after walking 25 m. Now, Aditya is in which direction from the starting point?

- (A) South-East (B) North-East  
(C) South-West (D) North-West

64. One morning Ajay and Mohit were talking to each other face to face at a crossing. If Mohit's shadow was exactly to the left of Ajay, which direction was Ajay facing?

- (A) East (B) West  
(C) North (D) South

65. In a row of students, Mohan is 10th from right and Sohan is 25th from left. When they interchanged their position then Mohan becomes 22nd from right. What is the new position of Sohan from left?

- (A) 35 (B) 36  
(C) 37 (D) 38

66. Rohit is 17th from left end of a row of 29 boys. Karan is 17th from the right end in the same row. How many boys are there between them in the row?

- (A) 3 (B) 6  
(C) 6 (D) None of these

