## **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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# MATRIX HIGH SCHOOL

**Pre-Foundation & Schooling Division** 

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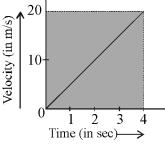


#### Class-IX

## 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 m/s<sup>2</sup>. The same force when applied on another body of mass 'm' produces an acceleration of 20 m/s<sup>2</sup>. 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



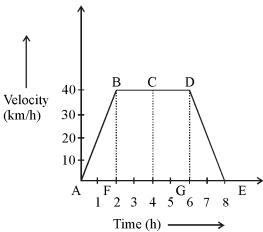
**3.** Fill in the blanks with the correct combination of terms. If an object of mass P is accelerated uniformly from a velocity of O to R in S in

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

- (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



7. The velocity-time graph for a car is shown in the figure below :



Using this graph, calculate the average speed of the car :

- (A) 40 km/h (B) 30 km/h
- (C) 64 km/h (D) 80 km/h
- 8. Area under acceleration time graph represents a physical quantity which has the unit :
  - (A)  $ms^{-2}$  (B) m
  - (C)  $m^3$  (D)  $ms^{-1}$

9. A ball takes t seconds to fall from a height  $h_1$  and 2t seconds to fall from height  $h_2$ . The ratio of  $h_1$  and  $h_2$  is :

- (A) 1:2 (B) 1:3
- (C) 1:4 (D) 1:8
- 10. Which of the following options best describes the term acceleration?
  - (A) The rate of change of velocity of a body with respect to a constant reference point.
  - (B) The velocity of a body with respect to time and a reference point in rest.
  - (C) The rate of change of velocity of a body with respect to time.
  - (D) The rate of change of velocity without any change in direction of a body.



## 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 :

		<b>C</b> 1	-				<b>C</b> 1	
		Column	1-1				Col	umn – II
	Р.	Matter					1.	Solid, Liquid and Gas
	Q.	Solids					2.	Causes cooling
	R.	Gases					3.	Interparticle force of attraction is lea
	S.	Evapora	tion				4.	Rigid nature
	T.	States of Matter				5.	Made of small particles	
	Coc	le :						
		Р	Q	R	S	Т		
	(A)	5	4	3	2	1		
	(B)	4	5	3	1	2		
	(C)	5	4	1	2	3		
	(D)	4	3	5	2	1		
•	Byv	which pro	perty a	e gases	and liqu	uds differe	ent fro	om solid?
	(A)	Volume					(B)	Mass
	(C)	Conduct	tivity				(D)	Fluidity
•	Alio	quid is ke	pt in a C	China dis	h. The e	evaporatio	on of t	he liquid can be accelerated :
	(A)	By keep	ing the	dish in tl	he open		(B)	By blowing air into the liquid
	(C)	By keep	ing the	dish und	er a run	ning fan	(D)	All the these
	The	forces of	attracti	on betw	een the	particles c	ofmat	ter is maximum in :
	(A)	Iron rod					(B)	Kerosene oil
	(C)	Glycerin	e				(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.

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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	r than water in a glass due to :						
	(A) Increase in surface area	(B) Increase in temperature						
	(C) Increase in humidity	(D) Decrease in kinetic enrgy						
17.	What will be the mass/mass percentage of a sol	lution containing 30 gm of common salt in 220 gm of water?						
	(A) 3%	(B) 1.2%						
	(C) 12%	(D) 22%						
18.	Which process in used to separate a mixture of	f two miscible liquids A and B having boiling points 56° C and						
	65° 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 b	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 mitoch	hondria 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
		— (4) ————

### Class-IX

24.	Grapes soaked in high concentrated solution c	of sugar "P". The process involved is known as "Q":
	(A) P-shrinks, Q-endosmosis	(B) P-swells, Q-Exosmosis
	(C) P-shrinks, Q-exosmosis	(D) P-swells, Q-endosmosis
25.	Locomotory organ in amoeba is?	
	(A) Cilia	(B) Pseudopodia
	(C) Flagella	(D) Limbs
26.	At the tip of root, which type of meristem pres	sent?
	(A) Apical meristem	(B) Lateral meristem
	(C) Intercalary meristem	(D) None of these
27.	The hard covering of nuts is due to :	
	(A) Sclerenchyma	(B) Phloem
	(C) Phloem parenchyma	(D) Sieve tubes
28.	Which muscles present in stomach?	
	(i) Striated muscles	(ii) Smooth muscles
	(iii) Involuntary muscles	(iv) Skeletal muscles
	(A) (i) and (ii)	(B) (ii) and (iii)
	(C) (iii) and (iv)	(D) (i) and (iv)
29.	Select the incorrect sentence :	
	(A) Blood has 55 % plasma	
	(B) W.B.C are two types	

(D) Basophil is a types of leukocytes

(C) Albumin carbohydrate present in plasma

**30.** Match the following and select the correct answer :

	Colum	n – I			Co	lumn – II
<b>P.</b>	Mitocho	ondria			1.	Helps in synthesis of food
Q.	Chlorop	olast			2.	Chromosome
<b>R.</b> 1	Nucleus	5			3.	Tonoplast
<b>S.</b>	Vacuole	;			4.	Respiration
Code	e:					
	Р	Q	R	S		
(A)	4	1	2	3		
(B)	1	2	3	4		
(C)	3	1	2	4		
(D)	4	3	1	2		



## 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) $0.1416$	(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>(B)</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 solutons	(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 con	grience 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 $4x^4 + 0x^3 + 0x^5 + 5x^5$	x + 7 is :
	(A) 4	(B) 5
	(C) 3	(D) 7
39.	Ordinate of all points on the x-axis is :	
	(A) 0	<b>(B)</b> 1
	(C) –1	(D) Any number

•`6́) •

40.	The equation $2x + 5y = 7$ has a unique solutio	n, 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 a	angles as 53°, 64° and 63°?
	(A) One	(B) Two
	(C) Infinitely many	(D) Cann't say
42.	In a $\triangle PQR$ , $\angle R = \angle P$ and $QR = 4$ cm and PF	R = 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>(B)</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°, then t	he angle between the bisectors of the other two angles can be :
	(A) $50^{\circ}$	(B) 65°
	(C) 145°	(D) 155°
47.	If D is a point on the side BC of a $\triangle$ ABC suc	th 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 $O(0, 0)$ , $A(3, 0)$ , $B(3)$ following figure is obtained?	, 4), C(0, 4) and joning OA, AB, BC and CO. Which of the
	(A) Square	(B) Rectangle

- (A) Square (B) Rectangle
- (C) Trapezium (D) Rhombus

- (7) -

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51.	In the figure, if OP    RS, $\angle$ OPQ = 110° and $\angle$ QRS = 130°; then $\angle$ PQR is equal to :			
	(A) 40°	$P$ $R$ $S$ $130^{\circ}$		
	<b>(B)</b> 50°	O P 130°		
	(C) 60°			
	(D) 70°			
52.	It is given that $\triangle ABC \cong \triangle FDE$ and $AB = 5$ cm	n, $\angle B = 40^{\circ}$ and $\angle A = 80^{\circ}$ , then which of the following is true?		
	(A) DF = 5cm, $\angle F = 60^{\circ}$	(B) DF = 5 cm, $\angle E = 60^{\circ}$		
	(C) DE = 5 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 fro	om the origin		
	(B) Parallel to y-axis at a distance 6 units fro			
	(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 equa	ation 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) <sup>0.16</sup> x (256) <sup>0.09</sup> is :			
	(A) 4	<b>(B)</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	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 w	vritten 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. T	he smallest angle of the triangle is :		
	(A) 60°	<b>(B)</b> 40°		
	(C) 80°	(D) 20°		
60.	If two sides of a triangle are of lengths 5cm as	nd 1.5cm, then the length of third side of triangle cannot be :		
	(A) 3.6 cm	(B) 4.1 cm		
	$(\mathbf{C})$ 2.0	$(\mathbf{D}) \rightarrow 1$		

- (C) 3.8 cm (D) 3.4 cm
  - (8) -



## 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.

(B) 81

(D) 100

- 61. Find the missing term
  1, 9, 25, 49, ?, 121
  (A) 64
  (C) 91
- **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 rigth 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



- 67. Select correct combination of mathematical sign to replace '\*' sign to balance the equation.
  - 9 \* 4 \* 22 \* 14
  - (A)  $\times = -$  (B)  $\times =$ (C)  $= - \times$  (D)  $- \times =$

**68.** Given interchange : sign '+' and ' -' and number 5 and 8. Which of the following is correct ?

(A) 82 - 35 + 55 = 2(B) 85 - 38 + 85 = 132(C) 82 - 35 + 55 = 102(D) 52 - 35 + 55 = 72

69. Nine cricket fans are watching a match in a stadium seated in one row, they are J, K, L, M, N, O, P, Q and R.(i) L is at just right of M and at third place at the right of N.

- (ii) K is at one end of the row.
- (iii) Q is seated adjacent to both O and P.
- (iv) O is at the third place at the left of K.
- (v) J is just left of O.

Who is sitting at the centre of the row?

- (A) I (B) J
- (C) 0 (D) Q
- **70.** These questions consists of a question and the statement numbered I and II below it. You have to decide whether the data given in the statements are sufficient to answer the question.

Read both the students and choose the appropriate option.

What does '\$' means in a code language.

- I ' 5 \$ # 7' means 'flowers are really good'.
- II '7 # 35' means 'good flowers are available'
- (A) Statement I alone are sufficient to answer the question
- (B) Statement II alone are sufficient to answer the question
- (C) Both statement I and II together are neccessary to answer the question
- (D) Both statemetns I and II together are not sufficient to answer the question