

**[SAMPLE PAPER]**  
**FOR CLASS**  
**9<sup>th</sup> GOING TO 10<sup>th</sup>**

**TIME : 2 Hours**

**FULL MARKS : 300**

**INSTRUCTIONS**

**[A] General**

1. This Question paper contains FIVE Parts, A to E (Physics, Chemistry, Biology, Mathematics & Mental Ability).
2. This Question Paper contains 12 pages including cover page.
3. This question paper contains total 75 questions (15 questions each in Physics, Chemistry, Biology, Mathematics and Mental Ability).
4. The Question Paper has blank spaces at the bottom of each page for rough work. No additional sheets will be provided for rough work.
5. Blank papers, clip boards, log tables, slide rule, calculators, cellular phones, pagers and electronic gadgets, in any form, are NOT allowed.
6. The OMR (Optical Mark Recognition) sheet shall be provided separately.

**[B] Answering on the OMR**

7. In all the parts, each question will have 4 choices out of which only one choice is correct.
8. Darken the bubble with Ball Pen (Blue or Black) ONLY.

**[C] Filling OMR**

9. On the OMR sheet, fill all the details properly and completely, otherwise your OMR will not be checked.
10. Do not write anything or tamper the barcode in the registration no. box.

**[D] Marking Scheme:**

11. For each question you will be awarded 3 marks if you darken the bubble corresponding to the correct answer ONLY and zero (0) marks if no bubble is darkened. In all other cases, minus one (-1) mark will be awarded.

**Name :** .....

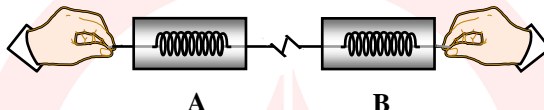
**Registration No.:**

**SECTION – A : PHYSICS**

1. A body whose position with respect to surrounding does not change, is said to be in a state of -  
(A) Rest                      (B) Motion                      (C) Vibration                      (D) Oscillation
2. In case of a moving body-  
(A) Displacement > Distance                      (B) Displacement < Distance  
(C) Displacement  $\geq$  Distance                      (D) Displacement  $\leq$  Distance
3. Vector quantities are those which have :  
(A) Only direction                      (B) Only Magnitude  
(C) Magnitude and direction both                      (D) None of these
4. A train starting from a railway station and moving with uniform acceleration, attains a speed of  $40 \text{ kmh}^{-1}$  in 10 minutes. Its acceleration is -  
(A)  $18.5 \text{ ms}^{-2}$                       (B)  $1.85 \text{ cm s}^{-2}$   
(C)  $18.5 \text{ cms}^{-2}$                       (D)  $1.85 \text{ m s}^{-2}$
5. The brakes applied to a car produce a negative acceleration of  $6\text{ms}^{-2}$ . If the car stops after 2 seconds, the initial velocity of the car is -  
(A)  $6 \text{ ms}^{-1}$                       (B)  $12 \text{ ms}^{-1}$                       (C)  $24 \text{ ms}^{-1}$                       (D) Zero
6. A body is moving with uniform velocity of  $10 \text{ ms}^{-1}$ . The velocity of the body after 10 s is-  
(A)  $100 \text{ ms}^{-1}$                       (B)  $50 \text{ ms}^{-1}$                       (C)  $10 \text{ ms}^{-1}$                       (D)  $5 \text{ ms}^{-1}$
7. If A and B are two objects with masses 10 kg and 30 kg respectively then :  
(A) A has more inertia than B                      (B) B has more inertia than A  
(C) A and B have the same inertia                      (D) none of the two have inertia
8. Newton's second law of motion-  
(A) defines force                      (B) defines inertia  
(C) gives measure of force                      (D) none of these

*Space for Rough Work*

9. The net force acting on a body of mass of 1 kg moving with a uniform velocity of  $5 \text{ ms}^{-1}$  is -  
(A) 5 N (B) 0.2 N (C) 0 N (D) None of these
10. The forces of action and reaction have ..... magnitude but ..... direction-  
(A) same, same (B) same, opposite  
(C) opposite, same (D) opposite, opposite
11. Consider two spring balances hooked as shown in the figure. We pull them in opposite directions. If the reading shown by A is 1.5 N, the reading shown by B will be –



- (A) 1.5 N (B) 2.5 N (C) 3.0 N (D) zero
12. A cannon after firing recoils due to -  
(A) conservation of energy (B) backward thrust of gases produced  
(C) Newton's first law of motion (D) Newton's third law of motion
13. When an apple falls from a tree  
(A) only earth attracts the apple  
(B) only apple attracts the earth  
(C) both the earth and the apple attract each other  
(D) none attracts each other
14. The value of G in year 1900 was  $6.673 \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$ , The value of G in the year 2007 will be :  
(A)  $6.673 \times 10^{-9} \text{ Nm}^2 \text{ kg}^{-2}$  (B)  $6.673 \times 10^{-10} \text{ Nm}^2 \text{ kg}^{-2}$   
(C)  $6.673 \times 10^{-2} \text{ Nm}^2 \text{ kg}^{-2}$  (D)  $6.673 \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$
15. The orbits of planets around the sun are:  
(A) circular (B) parabolic (C) elliptical (D) straight

*Space for Rough Work*

**SECTION – B : CHEMISTRY**

16. The density of water is maximum at  
(A) 0°C (B) 277 K (C) 100°C (D) 283 K
17. Addition of impurities to water.  
(A) decreases the freezing point of water  
(B) increases the boiling point water  
(C) does not affect the freezing or boiling point of water.  
(D) Both (A) and (B)
18. Which of the following has highest intermolecular forces of attraction.  
(A) Liquid water (B) Liquid ethyl alcohol  
(C) Gaseous CO<sub>2</sub> (D) Solid CO<sub>2</sub>
19. The standard room temperature is taken  
(A) 0°C (B) 298 K (C) 273 K (D) 20°C
20. In which of the following cases cooking is very slow ?  
(A) pressure cooker at sea level (B) pressure cooker at higher altitude  
(c) open vessel at sea level (D) open vessel at higher attitude
21. The electron revolves only in the orbits in which  
(A)  $MVr > \frac{nh}{2\pi}$  (b)  $MVr \geq \frac{nh}{2\pi}$  (C)  $MVr = \frac{nh}{2\pi}$  (D)  $MVr < \frac{nh}{2\pi}$
22. The condition necessary for production of cathode rays are  
(A) high pressure, low voltage (B) low pressure, low voltage  
(C) low pressure, high voltage (D) high pressure, high voltage
23. Mass of an e<sup>-</sup> is  
(A)  $9.1 \times 10^{-28}$  gm (B)  $9.1 \times 10^{-31}$  kg  
(C) Both (A) & (B) (D) None of these

*Space for Rough Work*

24. Which of the following is correct for anode rays?
- (A) Its properties does not depend on gas in tube.  
(B) It travels in straight line  
(C) It has negative charge  
(D) Its properties depend anode material
25. Which of the following pairs are having different number of total electrons?
- (A)  $\text{Na}^+$  and  $\text{Al}^{+3}$       (B)  $\text{P}^{-3}$  and Ar      (C)  $\text{Mg}^{+2}$  and Ar      (D)  $\text{O}^{-2}$  and  $\text{F}^-$
26. The percentage of hydrogen in water
- (A) 1.11%      (B) 11.11%      (C) 8.89%      (D) 88.9%
27. How many moles of electron weight one kilogram ?
- (A)  $6.023 \times 10^{23}$       (B)  $6.023 \times 10^8$       (C)  $9.108 \times 10^{54}$       (D)  $1.82 \times 10^6$
28. The number of molecules of  $\text{CO}_2$  present in 44g of  $\text{CO}_2$  is
- (A)  $6.02 \times 10^{23}$       (B)  $3 \times 10^{23}$       (C)  $12 \times 10^{23}$       (D)  $3 \times 10^{10}$
29. Size of colloidal particles in a solution is
- (A) Between 1 to 100 nm      (B)  $10^{-9}$  to  $10^{-6}$  m  
(C) Both (A) and (B)      (D) None of these
30. Which gas is filled in hot air balloon?
- (A) Nitrogen      (B) Helium      (C) Oxygen      (D) Chlorine

*Space for Rough Work*

**SECTION – C : BIOLOGY**

31. Which one is not a source of carbohydrate ?  
(A) Rice (B) Millits (C) Sorghum (D) Gram
32. Which one of the following nutrients is not available in fertilizers ?  
(A) Nitrogen (B) Phosphorus (C) Iron (D) Potassium
33. Which of the following is gaseous fumigant ?  
(A) DDT (B) Aluminium phosphide  
(C) Ethylene dichloride (D) Methyl bromide
34. Living organisms are used in  
(A) Organic manure (B) Biofertilizers  
(C) Pesticides (D) Natural insecticides
35. Mitochondria are the seat of :  
(A) Anaerobic resp<sup>n</sup> (B) Trapping of sunlight  
(C) Kreb's cycle (D) Calvin cycle
36. Lipid molecules in the cell are synthesized by  
(A) Smooth endoplasmic reticulum (B) Rough endoplasmic reticulum  
(C) Golgi apparatus (D) Plastids
37. Chromosomes are made up of  
(A) DNA (B) protein (C) DNA & protein (D) RNA
38. Which of the following is known as "physical basis of life"?  
(A) Gene (B) Protoplasm (C) Nucleolus (D) Mitochondria
39. Organelle without a cell membrane is  
(A) Ribosome (B) Nucleus (C) Mitochondria (D) Chloroplast
40. Meristematic tissue in plants are  
(A) Growing in volume (B) Localised and permanent  
(C) Localised and dividing cells (D) Vascular bundle

*Space for Rough Work*

41. Guard cells are present in  
(A) Cork (B) Cortex (C) Stomata (D) Vascular bundle
42. Lignified elongated dead cells are  
(A) Parenchyma (B) Collenchyma (C) Sclerenchyma (D) None
43. Cartilage is not found in  
(A) Nose (B) Ear (C) Kidney (D) Larynx
44. Health deals with  
(A) Social well being (B) Physical fitness  
(C) Mental fitness (D) All the above
45. Which one of the following is not a viral disease ?  
(A) AIDS (B) Dengue (C) Influenza (D) Typhoid

*Space for Rough Work*

**SECTION – D : MATHEMATICS**

46. Four bells ring at intervals of 6, 7, 8 and 9 seconds respectively. All the bells ring together after \_\_\_\_\_ seconds.
- (A) 504 (B) 516 (C) 508 (D) 512
47. The value of  $\frac{2^{m+3} \times 3^{2m-n} \times 5^{m+n+3} 6^{n+1}}{6^{m+1} \times 10^{n+3} \times 15^m}$  is equal to -
- (A) 0 (B) 1 (C)  $2^m$  (D) None of these
48. Express  $0.\overline{75}$  as rational number
- (A)  $\frac{75}{90}$  (B)  $\frac{25}{33}$  (C)  $\frac{3}{4}$  (D) None of these
49. The value of  $\frac{(5)^{0.25} \times (125)^{0.25}}{(256)^{0.10} \times (256)^{0.15}}$  is -
- (A) 1 (B)  $\frac{5}{4}$  (C) 100 (D) None of these
50. If  $(a + b, a - b)$  is the solution of the equations  $3x + 2y = 20$  and  $4x - 5y = 42$ , then find the value of  $b$ .
- (A) 8 (B) -2 (C) -4 (D) 5
51. The difference between two numbers is 5 difference and their squares is 65. The larger number is
- (A) 9 (B) 10 (C) 11 (D) 12
52. If  $x^2 + \frac{1}{x^2} = 66$ , then  $x - \frac{1}{x} =$
- (A) 8 (B) -8 (C)  $\pm 8$  (D)  $\pm 4$
53. In the points  $(k, 2 - 2k)$ ,  $(1 - k, 2k)$  and  $(-k - 4, 6 - 2k)$  be collinear, the possible values of  $k$  are
- (A)  $-\frac{1}{2}$  (B)  $\frac{1}{2}$  (C) 1 (D) -2

*Space for Rough Work*



54. If A(-2, -1), B(a, 0), C(4, b) and D(1, 2) are the vertices of a parallelogram, Then the value of a and b is

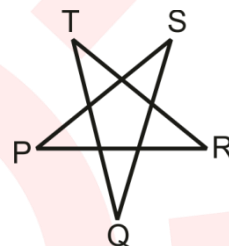
- (A)  $a - 2, b = 3$       (B)  $a = 1, b = 2$       (C)  $a = 3, b = 1$       (D)  $a = 1, b = 3$

55. If the coordinates of the centroid of a triangle are (1, 3) and two of its vertices are (-7, 6) and (8, 5), then the third vertex of the triangle is

- (A)  $\left(\frac{2}{3}, \frac{14}{3}\right)$       (B)  $\left(-\frac{2}{3}, -\frac{14}{3}\right)$       (C) (2, -2)      (D) (-2, 2)

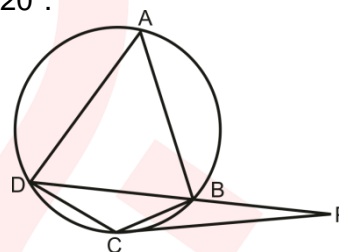
56. In the figure given sum of all the angles is equal to

- (A) 10 right angles  
(B) 12 right angles  
(C) 14 right angles  
(D) 16 right angles



57. In the figure given below, PC is tangent to the circle from the point P and B is a point of the circle such that PB = CB. Find  $\angle DCP$  if,  $\angle DPC = 20^\circ$ .

- (A)  $120^\circ$   
(B)  $140^\circ$   
(C)  $120^\circ$   
(D)  $100^\circ$



58. Which of the following is true?

- (i) A triangle can have two right angles.  
(ii) A triangle can have all angles less than  $60^\circ$   
(iii) A triangle can have two acute angles.

- (A) Only(ii)      (B) Only(i)      (C) Only (iii)      (D) All are true

59. If x is the length of a median of an equilateral triangle, then its area is :

- (A)  $x^2$       (B)  $\frac{x^2\sqrt{3}}{2}$       (C)  $\frac{x^2\sqrt{3}}{3}$       (D)  $\frac{x^2}{2}$

60. If the area of an equilateral triangle is  $24\sqrt{3}$  sq. m, then its perimeter is :

- (A) 96 m      (B)  $12\sqrt{6}$  m      (C)  $4\sqrt{6}$  m      (D)  $2\sqrt{6}$  m

*Space for Rough Work*

**SECTION – E : MENTAL ABILITY****Direction**

Read the information carefully and answer the questions based on it.

Six persons P, Q, R, S, T and U are sitting in a circle facing on another front to front. P is sitting in front of Q. Q is sitting to the right of T and left of R. P is to the left of U and right of S.

61. Who is sitting opposite to R ?  
(A) P (B) Q (C) S (D) U
62. Who is sitting opposite to S ?  
(A) U (B) T  
(C) R (D) can't be determined
63. Who is sitting between P and R ?  
(A) S (B) T (C) U (D) Q

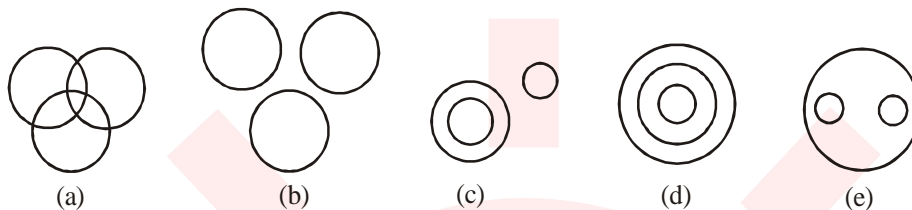
**Direction**

In each of the following questions below, find out the correct answer from the given alternatives.

64. In a certain code, INSTITUTION is written as NOITUTITSNI. How is PERFECTION written in that code ?  
(A) NOICTEFREP (B) NOITCEFERP (C) NOITCEFRPE (D) NOITCEFREP
65. In a certain code, GIGANTIC is written as GIGTANCI. How is MIRACLES written in that code ?  
(A) MIRLCAES (B) MIRLACSE (C) RIMCALSE (D) RIMLCAES
66. In a certain code, GOODNESS is coded as HNPCODTR. How is GREATNESS coded in that code ?  
(A) HQFZUODTR (B) HQFZUMFRT (C) HQFZSMFRT (D) FSDBSODTR

*Space for Rough Work*

Each question below contains three groups of things. You are to choose from the following five numbered diagrams, the diagram that depicts the correct relationship among the three groups of things in each question.



67. Vegetable, Fruit, Brinjal  
 (A) a (B) b (C) c (D) d
68. Door, Window, House  
 (A) a (B) b (C) e (D) d
69. Honest, Intelligent, Poor  
 (A) a (B) b (C) c (D) d
70. Car, Train, automobile  
 (A) a (B) b (C) c (D) d
71. Zinc, Copper, Iron  
 (A) a (B) b (C) c (D) d

**Directions**

In each of the following questions,  $\Delta$  means 'is greater than',  $\%$  means 'is lesser than',  $\square$  means 'is equal to' = means 'is not equal to',  $+$  means 'is a little more than',  $\times$  means 'is a little less than'.

Choose the correct alternative in each of the following questions.

72. If P denotes  $\div$ , Q denotes  $\times$ , R denotes  $+$  and S denotes  $-$ , then : 18 Q 12 P 4 R 5 S 6 = ?  
 (A) 36 (B) 53 (C) 59 (D) 65

*Space for Rough Work*

73. If a means 'Plus', b means 'minus', c means 'multiplied by' and d means 'divided by', then  
 $18c \ 14a \ 6b \ 16d \ 4 = ?$
- (A) 63                      (B) 254                      (C) 288                      (D) none of these
74. I start from my home and go two kilometer straight. Then I turn towards my right and go one kilometer. I turn again towards my right and go one kilometer again. If I am North-west from my house then in which direction did I go in the beginning?
- (A) North                      (B) South                      (C) East                      (D) West
75. A and B start walking in opposite direction. A covers 3 kms and B covers 4 kms. Then A turns right and walks 4 kms and B turns right and walks 3kms. How far is each from the starting point ?
- (A) 5 kms                      (B) 4 kms                      (C) 3 kms                      (D) 9 kms

*Space for Rough Work*