



# MITTAL CLASSES

IIT-JEE | MEDICAL | FOUNDATION

Paper Code:09F-SP-1

## SAMPLE PAPER

Class – IX

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, and Date in the space provided at the bottom of this sheet.

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NAME: \_\_\_\_\_

FATHER NAME: \_\_\_\_\_

CLASS: \_\_\_\_\_

DATE: \_\_\_\_\_

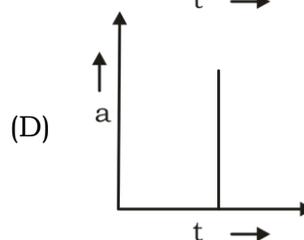
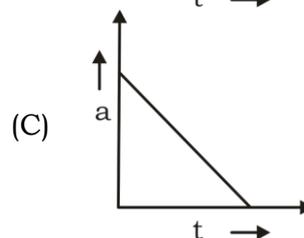
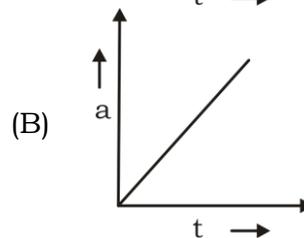
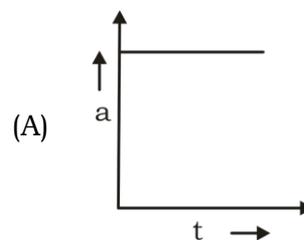
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**PHYSICS**

- In case of a moving body:  
(A) Displacement  $>$  Distance  
(B) Displacement  $<$  Distance  
(C) Displacement  $\geq$  Distance  
(D) Displacement  $\leq$  Distance
- Examples of vector quantities are:  
(A) velocity, length and mass  
(B) speed, length and mass  
(C) time, displacement and mass  
(D) velocity, displacement and force
- A quantity has value of  $-6.0 \text{ ms}^{-1}$ . It may be the:  
(A) Speed of a particle  
(B) Velocity of a particle  
(C) Position of a particle  
(D) Displacement of a particle
- 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)  $18.5 \text{ cm s}^{-2}$   
(D)  $1.85 \text{ m s}^{-2}$
- A stone is dropped from the top of a tower. Its velocity after it has fallen 20 m is [Take  $g = 10 \text{ ms}^{-2}$ ]:  
(A)  $5 \text{ ms}^{-1}$   
(B)  $10 \text{ ms}^{-1}$   
(C)  $15 \text{ ms}^{-1}$   
(D)  $20 \text{ ms}^{-1}$
- Area between speed- time graph and time axis gives:  
(A) Distance  
(B) Velocity  
(C) Speed  
(D) None of these

7. Which of the acceleration - time graph is not possible?



8. A girl swims in a swimming pool of length 100 m. She swims from one end to another end and reaches the starting point again in 2 minutes. The average velocity of the swimmer is  
(A)  $100 \text{ ms}^{-1}$   
(B)  $0.83 \text{ ms}^{-1}$   
(C)  $1.67 \text{ ms}^{-1}$   
(D) zero

Space for rough work



9. 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
10. An unbalanced force acts on a body. The body:  
(A) Must remain in same state  
(B) Must move with uniform velocity  
(C) Must accelerate  
(D) Must move along a circle.
11. It is required to increase the velocity of a scooter of mass 80 kg from 5 ms<sup>-1</sup> to 25 ms<sup>-1</sup> in 2 s. The force required will be  
(A) 200 N  
(B) 600 N  
(C) 800 N  
(D) 100 N
12. A particle is in straight line motion with uniform velocity. A force is not required  
(A) To increase the speed  
(B) To decrease the speed  
(C) To keep the speed constant  
(D) To change the direction
13. When a bullet is fired from a gun. The gun recoils due to:  
(A) conservation of mass  
(B) conservation of momentum  
(C) conservation of K.E.  
(D) none of these
14. A book of weight 10 N is placed on a table. The force exerted by the surface of the table on the book will be  
(A) Zero  
(B) 10N  
(C) 20N  
(D) None of these
15. The forces of action and reaction have \_\_\_\_\_ magnitude but \_\_\_\_\_ direction:  
(A) same, same  
(B) same, opposite  
(C) opposite, same  
(D) opposite, opposite

**CHEMISTRY**

16. The principle behind fractional distillation technique in separation of two liquids is –  
(A) difference in melting point  
(B) difference in boiling point  
(C) difference in concentration  
(D) difference in solubility
17. Carbon burns in oxygen to form carbon dioxide. The properties of carbon dioxide are-  
(A) similar to carbon  
(B) similar to oxygen  
(C) totally different from both carbon and oxygen  
(D) much similar to both carbon and oxygen
18. Which of the following statement is not true about colloidal solution?  
(A) These are visible under powerful microscope.  
(B) Their particles do not settle down with passage of time.  
(C) Their particles are electrically charged.  
(D) These are homogeneous in nature.

*Space for rough work*



19. A physical change is named so because:  
(A) Only change in physical properties takes place  
(B) Energy transfer takes place  
(C) It is reversible  
(D) All of these
20. Which of the following is not a chemical change ?  
(A) Rusting of iron  
(B) Cooking of food  
(C) Freezing of water  
(D) Digestion of food
21. Which of the following is a physical change?  
(A) Evaporation of alcohol  
(B) Melting of ice  
(C) Rusting of iron  
(D) Both (A) & (B)
22. What will be the sublimate, when a mixture of sand, sulphur, common salt and iodine is sublimed?  
(A) Sand  
(B) Iodine  
(C) Sulphur  
(D) Common salt
23. Which of the following will show Tyndall effect?  
(A) Starch solution  
(B) Sodium chloride solution  
(C) Copper sulphate solution  
(D) Sugar solution
24. Which of the following is an example of gel ?  
(A) Coloured gem  
(B) Jelly  
(C) Smoke  
(D) Shaving cream
25. When a beam of light is passed through a colloidal solution, it gets –  
(A) reflected  
(B) absorbed  
(C) scattered  
(D) refracted
26. Fog is an example of –  
(A) foam  
(B) emulsion  
(C) aerosol  
(D) gel
27. Air is regarded as a –  
(A) compound  
(B) mixture  
(C) element  
(D) electrolyte
28. If a substance can be separated into different kinds of matter by some physical process, then the substance is-  
(A) a mixture  
(B) a molecule  
(C) a compound  
(D) an element
29. A solution, which at a given temperature dissolves as much solute as it is capable of dissolving, is said to be a –  
(A) super saturated solution  
(B) semi saturated solution  
(C) unsaturated solution  
(D) saturated solution

*Space for rough work*



30. The elements which give out harmful radiation are called –

- (A) normal elements
- (B) representative elements
- (C) radioactive elements
- (D) none of these

35. If  $\frac{x}{3} + 7 = 15 - \frac{x}{5}$ , then find the

solution ?

- (A)  $x = 20$
- (B)  $x = 15$
- (C)  $x = 21$
- (D)  $x = 18$

**MATHEMATICS**

31. The rational form of  $2.\overline{7435}$  is :

- (A)  $\frac{27161}{9999}$
- (B)  $\frac{27}{99}$
- (C)  $\frac{27161}{9900}$
- (D)  $\frac{27161}{9000}$

32. The simplest rationalization factor of  $\sqrt{50}$  is :

- (A) 5
- (B)  $\sqrt{2}$
- (C) 50
- (D)  $\sqrt{50}$

33. Raj wanted to type the first 200 natural numbers, how many times does he have to press the keys

- (A) 489
- (B) 492
- (C) 400
- (D) 365

34. One fourth of one third of one half of a number is 12, then number is:

- (A) 284
- (B) 286
- (C) 288
- (D) 290

36. If both co-ordinates of any point are negative then that point will lie in:

- (A) First quadrant
- (B) Second quadrant
- (C) Third quadrant
- (D) Fourth quadrant

37. The distance of the point (3, 5) from X-axis is:

- (A)  $\sqrt{35}$
- (B) 3
- (C) 5
- (D) None of these

38. The angle between the bisectors of two adjacent supplementary angles is :

- (A) acute angle
- (B) right angle
- (C) obtuse angle
- (D) none of these

39. If one angle of a triangle is  $72^\circ$  and the difference of the other two angles is  $12^\circ$ , Find the ratio of other two angles.

- (A) 4 : 5
- (B) 2 : 1
- (C) 3 : 4
- (D) 5 : 3

*Space for rough work*



40. If the three altitudes of a  $\Delta$  are equal then triangle is:  
(A) isosceles  
(B) equilateral  
(C) right angled  
(D) none
41. The number of triangles with any three of the lengths 1, 4, 6 and 8 cm, are:  
(A) 4  
(B) 2  
(C) 1  
(D) 0
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
43. The perimeter of an isosceles triangle is equal to 14 cm, the lateral side is to the base in the ratio 5 : 4. The area of the triangle is:  
(A)  $\frac{1}{2}\sqrt{21}$  cm<sup>2</sup>  
(B)  $\frac{3}{2}\sqrt{21}$  cm<sup>2</sup>  
(C)  $\sqrt{21}$  cm<sup>2</sup>  
(D)  $2\sqrt{21}$  cm<sup>2</sup>
44. In an examination, 10 students scored the following marks in Mathematics 35, 19, 28, 32, 63, 02, 47, 31, 13, 98. Its range is:  
(A) 96  
(B) 02  
(C) 98  
(D) 50
45. The average of 15 numbers is 18. The average of first 8 is 19 and that last 8 is 17, then the 8th number is:  
(A) 15  
(B) 16  
(C) 18  
(D) 20
- MENTAL ABILITY**
46. A walks 10 metres towards East and then 10 metres to his right. Then every time turning to his left, he walks 5, 15 and 15 metres respectively. How far is he now from his starting point?  
(A) 5 metres  
(B) 10 metres  
(C) 15 metres  
(D) 20 metres
47. Ram walks 10 km towards North. From there, he walks 6km towards South. Then, he walks 3 km towards East. How far and in which direction is he with reference to his starting point?  
(A) 5 km, North  
(B) 5 km, North-East  
(C) 7 km, East  
(D) 7 km, West
48. Pointing towards a person in a photograph, Aashka said, "He is the only son of the father of my sister's brother." How is that person related to Aashka?  
(A) Father  
(B) Cousin  
(C) Maternal Uncle  
(D) Brother

*Space for rough work*

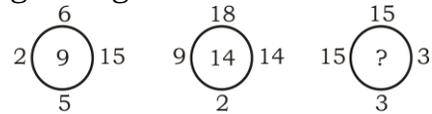


49. T is the son of P. S is the son of Q. T is married to R. R is Q's daughter. How is S related to T?  
(A) Brother  
(B) Uncle  
(C) Father-in-law  
(D) Brother-in-law
50. If the day before yesterday was Saturday, what day will fall on the day after tomorrow?  
(A) Friday  
(B) Thursday  
(C) Wednesday  
(D) Tuesday
51. The year that will have the same calendar as that of the year 1995.  
(A) 2002  
(B) 2005  
(C) 2006  
(D) 2001

54. 4, 8, 12, 24, 36, 72, ?  
(A) 98  
(B) 100  
(C) 144  
(D) 108

55. 4, 7, 3, 6, 2, 5, ?  
(A) 6  
(B) 5  
(C) 3  
(D) 1

56. Find the missing term in the given figure



- (A) 1  
(B) 18  
(C) 90  
(D) 225

**Directions : (52 to 53)** A, B, C and D are to be seated in a row. But C and D cannot be together. Also B cannot be at the third place.

52. Which of the following must be false?  
(A) A is at the first place  
(B) A is at the second place  
(C) A is at third place  
(D) A is at the fourth place
53. If A is not at the third place, then C has which of the following option?  
(A) The first place only  
(B) The third place only  
(C) The first or third place only  
(D) Any of the places

57. Find the missing term in the given figure



- (A) 127  
(B) 142  
(C) 158  
(D) 198

58. JXG, HTJ, FPN, ?, BHY  
(A) EKS  
(B) ELS  
(C) DLR  
(D) DLS

59. ZSD, YTC, XUB, WVA, ?

*Space for rough work*



- (A) VZZ
- (B) ZVX
- (C) VWZ
- (D) VZX

- (A) Protein
- (B) Carbohydrate
- (C) Fat
- (D) All

60. Correct the following equations by interchanging two signs.

$$16 - 21 \div 7 \times 6 + 3 = 31$$

- (A) - and  $\div$
- (B) + and  $\times$
- (C)  $\div$  and +
- (D)  $\div$  and  $\times$

66. Which part of the following used in lens adjustment.

- (A) Coarse adjustment
- (B) Fine adjustment
- (C) Base
- (D) both (A) & (B)

### **BIOLOGY**

61. The first person to observe a cell under microscope was —

- (A) M. Schleiden
- (B) T. Schwann
- (C) Robert Hooke
- (D) A.V. Leeuwenhoek

62. Cell theory was proposed by —

- (A) Morgan
- (B) Haldane
- (C) Schleiden and Schwann
- (D) Robert Hooke

63. A cell which have taken a specific structure and function are

- (A) Differentiated cells
- (B) Undifferentiated
- (C) Permanent cells
- (D) Both (A) and (C)

64. Melanocyte cells are :

- (A) Ovum Shaped
- (B) Branched Shape
- (C) Tubular Shape
- (D) Ciliated

65. Aleuroplast stores -

67. Osmosis takes place between two solutions separated by a semipermeable membrane because.

- (A) Water molecules move from the more dilute solution to the less dilute solution
- (B) Solute molecules move from the less dilute solution to the more dilute solution
- (C) Water molecules move from the less dilute solution to the more dilute solution
- (D) Solute molecules move from the more dilute solution to the less dilute solution

68. Mitochondrial matrix contains :

- (A) Enzymes
- (B) DNA & RNA
- (C) Ribosomes
- (D) All of above

69. Study of tissue is known as-

- (A) Histology
- (B) Cytology
- (C) cell biology
- (D) None of these

*Space for rough work*



70. In grasses the length of internodes increases by the activity of  
(A) apical meristem  
(B) intercalary meristem  
(C) lateral meristem  
(D) secondary meristem
71. Which of the following plant tissues is formed by permanent tissue ?  
(A) Primary tissue  
(B) Secondary tissue  
(C) Both of above  
(D) None of above
72. A permanent plant tissue made up of living cells having thickening at the corners is —  
(A) sclerenchyma  
(B) collenchyma  
(C) parenchyma  
(D) phloem
73. The outer wall of epidermis in stems and leaves has a waxy covering made up of —  
(A) lignin  
(B) suberin  
(C) pectin  
(D) cutin
74. In plants phloem tissues perform the function of  
(A) conduction of water  
(B) conduction of food  
(C) photosynthesis  
(D) mechanical support
75. In plants, cell division is restricted upto —  
(A) meristematic cells  
(B) permanent cells  
(C) xylem  
(D) phloem

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*Space for rough work*