

MODEL PAPER PHYSICS CLASS 9

NOTE: Attempt all questions from Section A by filling the corresponding bubble on the MCQs RESPONSE SHEET. It is mandatory to return the attempted MCQs sheet to the Superintendent within given time.

SECTION –A

Time: 20 minutes

Marks: 12

1. In standard form, the mass of a bacterial cell, 0.000,000,000,005kg is expressed as:
A) 5×10^{12} kg **B) 5×10^{-12} kg** C) 50×10^{11} kg D) 0.5×10^{-12} kg
2. If a student goes to school by covering a distance of 500m and then returns home following the same path, his displacement is:
A) 0m B) 250m C) 500m D) 1000m
3. The mass of an object is a quantitative measure of:
A) Weight **B) Inertia** C) Energy D) Momentum
4. Force needed to produce an acceleration of 10m/s^2 in the ball of mass 0.3kg is:
A) 1.5N **B) 3N** C) 10.3N D) 30N
5. A body in equilibrium must not be:
A) At rest B) In motion C) Spinning **D) Accelerating**
6. To open a door force of 15N is applied at 30° to the horizontal, its vertical component is:
A) 5N **B) 7.5N** C) 13N D) 15N
7. The value of 'g' is maximum at earth's:
A) Equator B) Inner surface C) Centre **D) Pole**
8. Work done will be zero when the angle between force and displacement is:
A) 0° B) 30° C) 60° **D) 90°**
9. If the speed of a car doubles, its K.E changes by factor:
A) 2 B) $\frac{1}{2}$ **C) 4** D) $\frac{1}{4}$
10. As we go deeper into a fluid, the pressure:
A) **Increases** B) Decreases C) Remains same D) Becomes zero
11. The boiling point of water in kelvin is:
A) 0K B) 100k C) 273K **D) 373K**
12. In convection currents, fluid from bottom moves upward due to its:
A) High viscosity B) Low viscosity C) High density **D) Low density**

SECTION-B

Time: 2 Hours 40 Minutes

Marks: 32

1. Attempt any eight of the following questions, each carry 4 marks.
 - i. Differentiate between base and derived physical quantities by giving one example of each.
 - ii. Write four steps to calculate the slope of graph in Cartesian coordinate system.
 - iii. A body of mass 6kg is moving with an acceleration of $5m/sec^2$. Find its change in momentum in 10 sec.
 - iv. Prove that $K.E = \frac{1}{2}mv^2$
 - v. Write any two advantages and disadvantages of friction.
 - vi. Define torque, what happens to the magnitude of torque when moment arm is doubled?
 - vii. Differentiate between static and dynamic equilibrium by giving one example of each.
 - viii. Derive mathematical form of Newton's law of universal gravitation.
 - ix. If 0.02 kg of mass is completely converted into energy, what is the total energy produced?
 - x. Define pressure, derive its formula and unit.
 - xi. Define thermal conductivity, write any three factors which affect the rate of flow of heat.

SECTION-C

Marks: 21

Note: Attempt any **THREE** of the following questions, each carry 7 marks.

2. a) Explain three types of motion with one example of each. (3)
b) A bullet accelerates the length of the barrel of a gun 0.8m long with a magnitude of $5.35 \times 10^5 m/s^2$. Find the speed of bullet when it exit the barrel. (4)
3. a) Determine the mass of earth by applying law of universal gravitation. (4)
b) At which altitude above earth's surface would the gravitational accelerations be $4.9m/s^2$? (3)
4. a) Explain the terms Stress, Strain and Young's modulus. (4)
b) An 0.8m long, 1mm diameter steel guitar string must be tightened to a tension of 2000N by turning the tuning screws. By how much is the string stretched? (3)
5. a) What is evaporation, and how the nature and temperature of liquid affect the rate of evaporation? (4)
b) What is the specific heat of a metal substance if 200kJ of heat is needed to raise 2.2kg of the metal from $21^\circ C$ to $40.2^\circ C$? (3)