P-366

9181
PHYSICS — 9th

NOTE: Attempt all questions of Section-A by filling the corresponding bubble on the MCQ ANSWER SHEET and return it to the Superintendent within given time, even if you have not attempted any question.

SECTION-A

Time: 20 Minutes **Marks:** 12

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1. One joule per second is equal to ..... A) 1 newton, B) 1 pascal, C) 1 watt, D) 1 candila

2. The density of mercury in $kg.m^{-3}$ is ..... A) 13600, B) 6000, C) 1000, D) 2000

3. 37°C = ... °F A) 96.6, B) 97.6, C) 98.6, D) 99.6

4. Melting point of lead is ..... A) 327°C, B) 961°C, C) 0°C, D) 420°C

5. Dark rough surfaces are generally good for ..... of heat.
A) reflection, B) radiation, C) conduction, D) convection

6. Light travels about ..... in one year. A) 9.5×10^{15}m, B) 9.5×10^{20}m, C) 9.5×10^{25}m, D) 3×10^{8}m

7. ..... is not a derived quantity. A) area, B) volume, C) density, D) length

8. The slope of displacement-time graph is called ..... A) speed, B) acceleration, C) displacement, D) velocity

9. If m = 0.25kg and a = $10ms^{-2}$ then F = ... A) 2.5N, B) 25N, C) 250N, D) 0.25N

10. Clock-wise torque is taken as ..... A) positive, B) negative, C) zero, D) parallel

11. The mass of earth is approximately ..... A) 6×10^{23}kg, B) 6×10^{24}gm, C) 6×10^{25}kg, D) 6×10^{24}kg

12. 1 Newton × 1 Meter = ... A) 1 watt, B) 1 pascal, C) 1 joule, D) 1 mole

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PHYSICS — 9th

Time: 2 Hours 40 Minutes

SECTION-B

Marks: 32

1. Attempt any eight of the following. All carry equal marks.

i. Why is area called a derived quantity?

ii. Define the following: Acceleration, Power, Velocity, Vector

iii. Show that time rate of change of momentum is equal to net force acting on the body.

iv. How are heat losses reduced in a thermos flask? Explain.

v. How can you determine the centre of gravity of an irregular shaped body?

vi. What is the difference between force of gravity and force of gravitation?

vii. Prove that $PE = mgh$

viii. State and explain Pascal's principle.

ix. Define evaporation of liquids. Name the factors on which it depends.

x. Why is the freezer compartment kept at the top of a refrigerator? State briefly.

xi. Explain why door handles are not put near hinges.

SECTION-C

Marks: 21

NOTE: Attempt any three of the following questions. All questions carry equal marks.

2. i. Define kinetic energy. Also prove that $KE = \frac{1}{2}mv^2$

ii. A body is thrown vertically upward with a speed of 30m/s. How high will it rise?

3. i. Define equilibrium of a body. State the two conditions of equilibrium.

ii. How much momentum will a body of mass 15kg transfer to the floor if it falls from a height of 1.2m?

4. i. Derive formula for the orbital speed of an artificial satellite.

ii. What is the pressure at a depth of 300m below the surface of water?

5. i. Explain the principle, calibration and various scales of thermometer.

ii. Find the amount of heat transfer in 1.5 hrs through a concrete wall having area $6m^2$ and $\Delta T = 20°C$ when thickness of wall is 1m.