9191 P-440

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.

Time: 20 minutes **Section A**

Marks: 12

1. Which prefix represents the largest value. A) mega B) giga C) peta D) exa

2. The average speed of bus is 20m/s. How far can it travel in 10 seconds?

   A) 100m b) 150m C) 200m D) 250m

3. The formula to calculate the moment of force is _____.

   A) Force /Area b) Force x Velocity C) Force x Area D) None of these

4. The SI unit of inertia is ____ A) Newton B) meter per second C) metre D) kilogram

5. The SI unit of linear momentum is simply ____ A) Nm B) Ns c) N kg D) None of these

6. The shortest distance between two couple forces is _

   A) momentum B) Couple arm C) radius D) diameter

7. Conventionally anti clockwise torque is taken as ____

   A) negative B) positive C) parallel D) Zero

8. kWh is unit for ____A) energy B) power C) force D) None of these

9. Young's Modulus for iron is ____

   A) 11×10^{11}pa B) 1.6×10^{10} pa C) 21×10^{10} pa D) 20×10^{10}pa.

10. Barometer is used to measure _____

    A) density B) vapour pressure c) 1kg x 1 meter D) None of these

11. One joule is equal to ___

    A) 1 meter x 1 sec B) 1 newton x 1 meter C) 1kg x 1 meter D) None

12. Which of the following is the best heat conductor?

    A) Aluminium B) tin C) iron D) Copper

9191 P-441

PHYSICS — 9th

Time: 2 Hours 40 Minutes

SECTION-B

Marks: 32

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

   i. Name any four derived units and write them as their base units.

   ii. Differentiate between average and instantaneous velocities.

   iii. Is it possible that displacement will be equal to distance?

   iv. How can we feel inertia? Explain with an example.

   v. What will be the effect if force is applied parallel to the axis of rotation?

   vi. Moon is attracted by the earth, why it does not fall on earth?

   vii. Can a centripetal force ever do work on an object? Explain.

   viii. Differentiate between stress and strain.

   ix. Why are water tanks constructed at the highest level in our houses?

   x. The temperature of a normal human body is 37°C. Find this temperature on the Fahrenheit and Kelvin scales.

   xi. Why wearing white is clothes preferred in summer?

SECTION-C

Marks: 21

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

2. i. Define scalar and vector quantities. Explain with examples the graphical representation of vector quantities.

   ii. With what speed must a ball be thrown vertically from ground level to rise to a maximum height of 40m?

3. i. Differentiate between centripetal force and centrifugal force.

   ii. A ball of weight 100N is moving on a frictionless surface with a velocity of $10ms^{-1}$, compute its kinetic energy.

4. i. State Pascal's principle and explain with examples.

   ii. The deepest point in the ocean is 11km below sea level, deeper than Mount Everest is tall. What is the pressure in atmosphere at this depth?

5. i. What do you mean by thermal expansion? Prove that the coefficient of volume thermal expansion of solids 'γ' is about three times of the coefficient of linear thermal expansion 'α' of solids.

   ii. Consider a meter-stick composed of platinum for which $\alpha = 8.8 \times 10^{-6} k^{-1}$. By what amount does the length of this meter-stick change if the temperature is increased by 1 k?