

Note: Section I is compulsory. Attempt any TWO (2) questions from Section II.

SECTION - I

Q.2 Write short answers to any FIVE (5) questions: 10

- i What is meant by the least count of an instrument
- ii Define Atomic Physics and Plasma Physics.
- iii Write down two rules to identify significant figures.
- iv Describe two situations where force of friction is needed
- v If weight of a body is 147 N, then find its mass.
- vi Write down two differences between mass and weight.
- vii With what force does 1 apple weighing 1N attracts the Earth?
- viii Why is the law of gravitation important to us?

Q.3 Write short answers to any FIVE (5) questions: 10

- i Why we can not add or subtract vectors like scalar quantities?
- ii Write down the use of LIDAR gun.
- iii Define vibratory motion and give one example.
- iv How liquid pushed up, when we use straw to drink?
- v On which principle, ships and boats are designed?
- vi Where are insulators used in daily life?
- vii Write down the names of expert thermal climber birds.

Q.4 Write short answers to any FIVE (5) questions: 10

i Find the Torque.



- ii Define equilibrium. Give an example of a moving body which is in equilibrium.
- iii What is meant by elasticity?
- iv Define energy. Write down its SI unit.
- v A body of mass 10Kg is raised to a height of 5m from earth. Find its gravitational potential energy.
- vi What is the Si unit of power? Define it.
- vii Differentiate between temperature and heat.
- viii Convert 50°C temperature into Kelvin scale and Fahrenheit scale of temperature.

SECTION-II

Q.5(a) State the law of Conservation of Momentum and prove it with an example. 5

(b) The value of g is 4ms^{-2} at a distance of 10000Km from the centre of the Earth. Find the mass of Earth. 4

Q.6(a) With the help of speed-time graph, prove that $2aS = V^2 - v_i^2$ 5

(b) A student presses his palm by his thumb with a force of 75 N. What would be the pressure under his thumb having contact area 1.5cm^2 ? 4

Q.7(a) Differentiate between the following a) Torque and Couple b) Centre of mass and Centre of Gravity 5

(b) Normal temperature of human body is 98.6°F . convert it into Celcius scale and Kelvin scale. 4