

PR IX (12) 23
PHYSICS (New Course)
9th (Fresh/Reappear)

Note: Time allowed for Section – B and Section – C is 2 Hours and 45 minutes.

Section – B

Marks: 32

Answer any EIGHT parts. Each part carries FOUR marks.

Q.1 Define the following branches of Physics:

- (i) Heat & Thermodynamics
- (ii) Oscillation of Waves
- (iii) Atomic & Nuclear Physics
- (iv) Optics

Q.2 Define vectors using suitable scale, graphically represent 200m displacement towards North.

Q.3 If a force 90N acts on a body, its momentum changes by 450 kg m/s. What is the time for which the force acts on the body?

Q.4 How centripetal force is used in washing machine dryer?

Q.5 What are unlike parallel forces? How unlike parallel forces can be added graphically?

Q.6 Can a single force applied to a body change both its translational and rotational motion? Explain.

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Q.7 Explain law of conservation of energy by giving example.

Q.8 A man takes 60s in lifting a load of 300N through a height of 10m. Find his power.

Q.9 Using stress strain curve, define elastic limit and breaking point.

Q.10 How evaporation cause cooling? Give example.

Q.11 It is easy to rupture a balloon by needle tip rather than using your finger why?

Section – C

Marks: 21

Note: Attempt any THREE questions. All questions carry equal marks.

Q-12 (a) For uniformly accelerated motion, derive 3rd equation of motion.

(b) With what speed must a ball be thrown vertically from ground level to rise to a maximum height of 60m?

Q-13 (a) Derive equation to find mass of the Earth and find the value mass of earth.

(b) The mass of the sun is 1.99×10^{30} kg and the radius of Earth's orbit around the sun is 1.5×10^{11} m. Calculate the orbital speed of the Earth.

Q-14 (a) State and explain Pascal's principle with example.

(b) The small piston of hydraulic lift has an area of 0.20m^2 . A car weighing $1.20 \times 10^4\text{N}$ sits on a large piston of area 0.90m^2 . How large force must be applied to the small piston to support that car?

Q-15 (a) Describe experiment to determine latent heat fusion and latent heat of vaporization of ice and water by sketching temperature-time graph on heating ice.

(b) A container has 2.5 liter of water at 20°C . How much heat is required to boil the water?