

**GREENLAWNS SCHOOL, WORLI**  
**PHYSICS**

**STD: IX**  
**Date: 06/10/2020**

**Marks: 60**  
**Time: 2hrs**

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**Question 1**

- a. A pendulum completes 2 oscillations in 5 s. What is its time period and frequency? [2]
- b. Why it is advised to tie the luggage with a rope on the roof of the buses? [2]
- c. State newton's law of action and reaction and law of gravitation. [2]
- d. A block of wood of volume  $25 \text{ cm}^3$  floats in water with  $20 \text{ cm}^3$  of its volume immersed. Calculate
- i. Density of wood( taking density of water  $1 \text{ gcm}^3$ )
  - ii. Weight of the wooden block. [2]
- e. When dropped from same height a body reaches the ground quicker at poles than at equator. Why? [2]

**Question 2**

- a. Differentiate between distance and displacement. [2]
- b. The value of  $g$  remains same of all places on the earth surface. Is this statement true? Give reason for your answer. [2]
- c. A car starting from rest acquires a velocity  $360 \text{ ms}^{-1}$  in 0.1 hr. Find the acceleration in the car. [2]
- d. Determine the height of water that will exert a pressure of 60 kPa. [2]  
(Density of water is  $1000 \text{ kg.m}^{-3}$  and  $g = 10 \text{ m.s}^{-2}$  )
- e. A body starts with initial velocity of 10 m and acceleration 5 m . Find the distance covered by it in 5 s [2]

**Question 3**

- a. A force of 600 dyne acts on a body of mass 3 g. Determine the acceleration produced in SI units. [2]
- b. Why does the atmosphere exert pressure on the earth? State the pressure exerted by the atmosphere at mean sea level in SI units. [2]
- c. What do you mean by apparent weight? What is the apparent weight of a floating body? [2]
- d. A solid of density  $X$  is dropped into a liquid of density  $Y$ . The volume of the solid is  $A$  and the volume of the liquid displaced is  $B$ .
- i. Write an equation for the upthrust acting on the solid in the above stated terms. [1]
  - ii. What will be the relationship between  $X$ ,  $Y$ ,  $A$  and  $B$  for the body to float? [1]
  - iii. Draw a diagram to illustrate what will happen when  $X = Y$ . [1]
  - iv. State the principle of floatation. [1]

**Question 4**

- a. Write the derived units for the following:
- i. Work
  - ii. Thrust
  - iii. Frequency
  - iv. Speed. [4]

- b.** A hockey stick exerts a force of 60 N on a stationary puck lying upon a frictionless ice field. The mass of the puck is 150 g and the force lasts for 0.1 s.
- i. Determine the acceleration produced. [1½]
  - ii. Determine the total distance covered by the ball in the time for which the force lasts. [1½]
  - iii. Determine the velocity achieved by the puck. [1½]
  - iv. The puck is also frictionless. What distance does it cover in 1 second after it loses contact with the hockey stick? [1½]

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