

GREENLAWNS SCHOOL, WORLI
Final Examination - 2017
PHYSICS

STD: VIII
Date: /02/2017

Marks: 80
Dur: 2hrs

Question 1

- a. The nose of some people starts bleeding when an airplane climbs up rapidly [2]
- b. Will a body weigh more in air or vacuum when weighed with a spring balance? Give reason for your answer. [2]
- c. The RD of ice is 0.92 and that of sea water is 1.025. Find the total volume of an ice berg which floats with its volume 800 cm^3 above water. [2]
- d. Why does the interior of a car become hot as compared to the temperature outside when it is parked in the sun? [2]
- e. Give two causes of global warming. [2]

Question 2

- a. Explain why the height of a barometer with water in it will be about 13.6 times the height of mercury in a common barometer. [2]
- b. A block of wood is floating in water. The portion of the block inside water measures $50 \text{ cm} \times 50 \text{ cm} \times 50 \text{ cm}$. What is the magnitude of the buoyant force on the block? (Density of water is 1 g/cm^3 .) [2]
- c. What do you mean by the greenhouse effect? Name two greenhouse gases. [2]
- d. Give any two effects of global warming. [2]
- e. What is the centre of buoyancy? State its position for a floating body with respect to the centre of gravity. [2]

Question 3

- a. Define pressure and thrust and give their S.I. units. [2]
- b. Atmospheric pressure at a place is 750 mm of Hg. Calculate the pressure in Pascal. (Density of Hg = 13600 kg/m^3) [2]
- c. State the principle of flotation and Archimedes' principle. [2]
- d. Why does a ship float in water even though it is made of steel of density greater than the density of sea water? [2]
- e. Draw a labeled diagram to illustrate the temperature gradient (variation with depth) of water in a lake when the surface water has frozen. [2]

Question 4

- a. State Pascal's law and give one example to demonstrate it. [2]
- b. Why does the liquid not run out of a dropper unless the rubber bulb is pressed? [2]
- c. What is the significance of the plimsoll line drawn on a ship? [2]
- d. Why are tops left dripping in sub-zero temperatures during winter? [2]
- e. Why do we not feel uneasy even under the enormous pressure of the atmosphere above as well as around us? [2]

Question5

- a. A car of mass 3140 kg supported on a hydraulic lift with circular piston of diameter 1.0m calculate the pressure transmitted take $g=10\text{m/s}^2$ and $\pi= 3.14$ [3]
- b. What do you mean by up thrust? State and explain the factors on which up thrust of a body depends [3]
- c. Show theoretically with the help as diagram that the pressure exerted by a liquid is given by $p = h\rho g$ where symbols have their usual meaning [4]

Question6

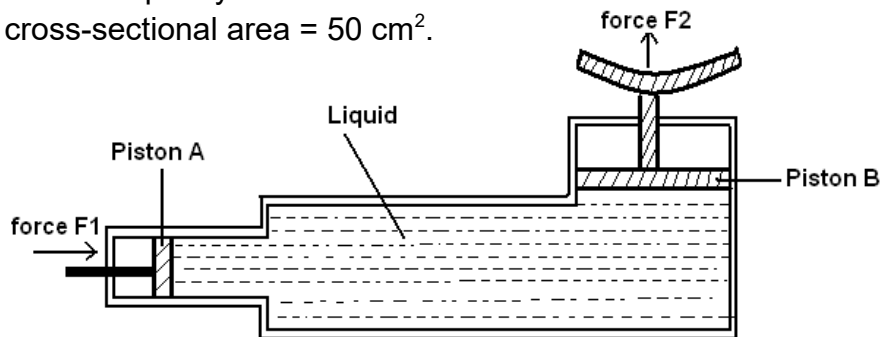
- a. A solid body weight 2.10 N in air its relative density is 8.4 how much will the body weight when it placed in water in a liquid of RD 1.2. [3]
- b. An iron ball of density 7800 kgm^{-3} and volume 200 cm^3 is totally immersed in water calculate the weight of iron ball in air calculate the up thrust its apparent wt in water= 10m/s^2 [3]
- c. Why and how does the atmospheric pressure vary with attitude? Draw a graph to illustrate it [4]

Question7

- a. A solid weight 50gf in air and 44 gf when completely immersed in water calculate
- Up thrust
 - Volume of the solid and
 - The relative density of the solid.
- [3]
- b. The temperature of a dry ice is -50°F what is its volume in the Celsius scale and Kelvin scale. [3]
- c. Explain the disadvantages of building large dams for generating hydro electric power. [4]

Question8

- a. What is an ecosystem state the functions of decomposers in an eco system [3]
- b. Name and explain the four factors which affect barometric height at a given place. [3]
- c. The figure shows a simple hydraulic machine. Piston A has cross-sectional area = 10 cm^2 . Piston B has cross-sectional area = 50 cm^2 .



In the figure above, a small force on piston A gives rise to a much bigger force on piston B.

- Explain briefly how this is possible. [1]
- When piston A is pushed in, pressure in the liquid is increased by 25N/cm^2 . Calculate F_1 and F_2 . [3]
