

SECTION A

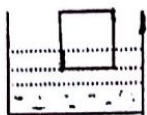
(Answer all questions)

Question 1

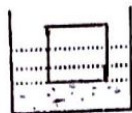
- a. A patient suffering from high fever is advised to put wet cloth strips on the forehead. Why? (2)
- b. When does a wet cloth dry more quickly
i) On a warm day or on a cold humid day?
ii) Give a reason for your answer. (2)
- c. A solid when heated, directly changes into its vapour.
i) Name the process.
ii) Give an example for such a substance. (2)
- d. i) What is meant by inter-molecular forces of attraction?
ii) How do they vary in different state of matter? (2)
- e. i) Name the processes in which liquid changes to vapour.
ii) Give one difference between the processes mentioned in part(i) above. (2)

Question 2

- a. The density of silver is 10.3g/cm^3 .
i) What do you mean by the above statement?
ii) Find the density of silver in SI unit. (2)
- b. i) State the law of floatation.
ii) What is the resultant force acting on a floating body? (2)
- c. The diagram below shows a body floating in two different liquids C and D at different levels.



Liquid C



Liquid D

- i) In which liquid does the body experience the greatest upthrust ?
ii) Which liquid has the highest density? (
- d. The mass of a density bottle is 35g when empty, 65g when filled with water and 59g when filled with alcohol. Find
i) the volume of the density bottle.

- ii) the density of the liquid.
e. The mass of an iron cube of volume 100cm^3 is equal to 78g.
Find the density of iron in i) CGS unit ii) SI unit.

Question 3

- a. i) Define thrust.
ii) State its SI unit.
b. Name two factors on which the pressure on a surface depends.
c. Find the thrust required to exert a pressure of $10,000\text{Pa}$ on an area of 0.04m^2 .
d. i) Define force.
ii) It is easier to open the door by pushing it at its free end. Give reason.
e. When does a man exert more pressure on the floor
i) while standing or walking.
ii) Give reason.

Question 4

- a. State the factors on which the work done by a force depends.
b. i) Define one Joule of work.
ii) State the factors on which kinetic energy of a body depends.
c. Write two differences between power and work.
d. i) Define energy.
ii) State its SI unit.
e. State the condition when a force i) perform work, ii) does not perform work

SECTION B (Answer all questions)

Question 5

- a. A body is placed inside a liquid
i) Name the forces which act on the body.
ii) State the direction of the forces mentioned in part (i) above .
iii) How does the forces mentioned in part (i) determine whether the body
1. sink in the liquid? 2. float in the liquid?
b. Where does a person find easier to swim
i) In sea water or in river water?
ii) Give reason for your answer in part (i).
c. What is a submarine?
i) How can it be made to dive in water?
ii) How can it be made to come to the surface of the water?

Question 6

- a. i) What do you mean by atmospheric pressure?
ii) How does the atmospheric pressure change with altitude?

- iii) We do not feel uneasy even under the enormous atmospheric pressure. Give reason. (4)
- iv) The astronauts have to wear special type of suits. Give reason. (4)
- b. i) State the factors on which the pressure at a point in a liquid depends. (3)
- ii) A dam has broader walls at the bottom than at the top. Give reason. (3)
- c. i) Define moment of force.
- ii) State one way to decrease the moment of a given force about a given axis of rotation.
- iii) The moment of force of 15N about a pivot is 45Nm. Calculate the distance of the force from the pivot. (3)

Question 7

- a. i) State two differences between thrust and pressure.
- ii) In what way, the pressure exerted by a solid differs from the pressure exerted by a liquid?
- iii) Heavy trucks have six to eight tyres instead of the conventional four tyres. Why?
- b. i) Name the SI unit of pressure.
- ii) Define the above mentioned unit in part (i)
- iii) A force of 20N acts normally on a body having area of cross section 10cm^2 . Calculate the pressure exerted by the body.
- c. State the conditions under which a body execute
 - i) 1. translational motion 2. rotational motion.
 - ii) Write the relation between SI unit and CGS unit of moment of force.

Question 8

- a. i) Define mechanical energy.
- ii) Name the two forms of mechanical energy.
- iii) Write two differences between the two forms of mechanical energy.
- b. State the energy conversion in the following while in use
 - i) A microphone
 - ii) An electric bulb
 - iii) An electric heater.
- c. Give one example for the following energy changes
 - i) electrical energy to sound energy
 - ii) electrical energy to chemical energy
 - iii) light energy to chemical energy.