Q.1 A student measures the length of an object and report it to be 1.25 mm.
    i) What is the least count of the instrument which he used?
    ii) Name the instrument which he used ?

Q.2 Convert the following---
i)   5 quintal into µg ii) 10 km into megameter

Q.3 i)Find order of magnitude of no.of hours in the year 2000?
    ii)The size of a nucleus is 2fermi. Find the order of magnitude of size of nucleus in km?

Q.4 A car accelerates at a constant rate of 2.0 ms^{-2}. What does this statement mean? What will be the velocity of the car after 1 minute if car starts from rest?

Q.5 A cricket ball weighing 400gm rises to a vertical height of 41·0m and drops vertically into a fielder's hands when it was 1·8m above the ground. The fielder brings it to rest in 1/10 sec. Calculate i) the speed of ball as it reaches the fielder's hand ii) the average force that must be applied to stop it?

**Q.6** Find the distance and displacement of the body in the following case-
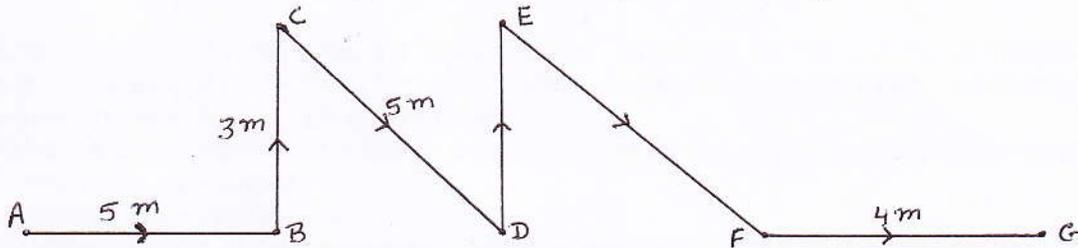
Q.7 Diameters of bottom and neck of a water bottle are 6 cm and 3 cm. If completely filled bottle is kept vertical 'in erect' and 'inverted position' one by one,where the pressure is more 'at bottom' or 'at cap'? Give reason to support your answer.

Q.8 A bottle can hold 100 g of water at 4°C, what mass of the sea water it can hold?
    (Given: Density of sea water is 1,030 kgm^{-3})

Q.9 The following figure shows a simple experiment. Study the diagram and calculate-

i)The volume of water displaced by the body?
ii)The upthrust acting on the immersed body?
iii)Density of material of the body?
iv) Name the principle which the above experiment demonstrates?
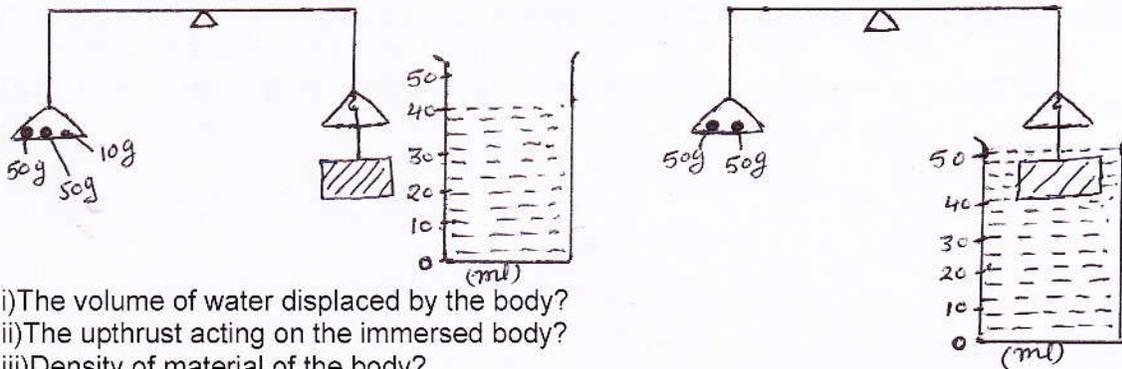
Q.10 A bullet fired by a terrorist moving with a velocity 20 ms^{-1}strikes on the bulletproof jacket of thickness 10 cm of a B.S.F. soldier. Jacket produced negative acceleration of 2 kms^{-2}. Can bullet hurts the soldier or not? (Give necessary calculation to support your answer)

Q.11 What information will you get regarding weather, when in a barometer there is-
    i) A gradual rise in the mercury level.
   ii) A sudden fall in the mercury level.

Q.12 Complete the following ray diagram and mark all the angels-
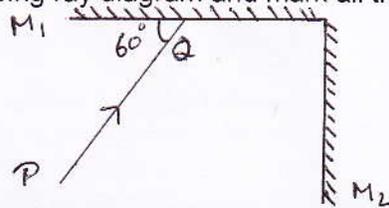
Show that, after being reflected from the vertical mirror M_2, the emergent ray goes out parallel to the incident ray?

Q.13 Final position of an object in front of a concave mirror, with focal length 30 cm. so that the image formed is three times the size of the object? Also draw the ray diagram.

Q.14 Name the parts A, B, C, D, E & F and also the function of each part of the following diagram-
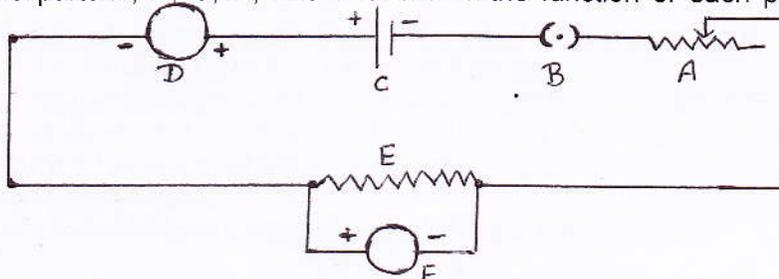
Q.15 What would have been the weight of Neil Armstrong on the surface of moon? Find the ratio of his weight on moon to that of on earth consider his mass as 75 kg. (acceleration due to gravity on moon is one-sixth that of on earth)

Q.16 A solid cylinder weighs 'a'gf in a liquid. It experiences an upthrust 'b'gf in the same liquid when fully submerged-

i) Find its actual weight in air

ii) When cylinder is fully immersed in water, it weighs 'c'gf. Find its volume and density in C.G.S. system of unit?

Q.17 An object is situated at a distance of 0·1m from the pole of a concave mirror of focal length 0·15m. Determine the nature and position of the image?

Q.18 An object is situated at a distance of 6 cm in front of convex mirror of focal length of 3 cm. Determine the position and nature of image formed? Also draw the ray diagram for image formation'

Q.19 A current of 0.5 mA passes through a wire with a resistance of 25 ohm. Find the potential difference across the wire in S.I. unit?

Q.20 If θ is equal to 36^0 in the following diagram find how many images of 'O' will form-