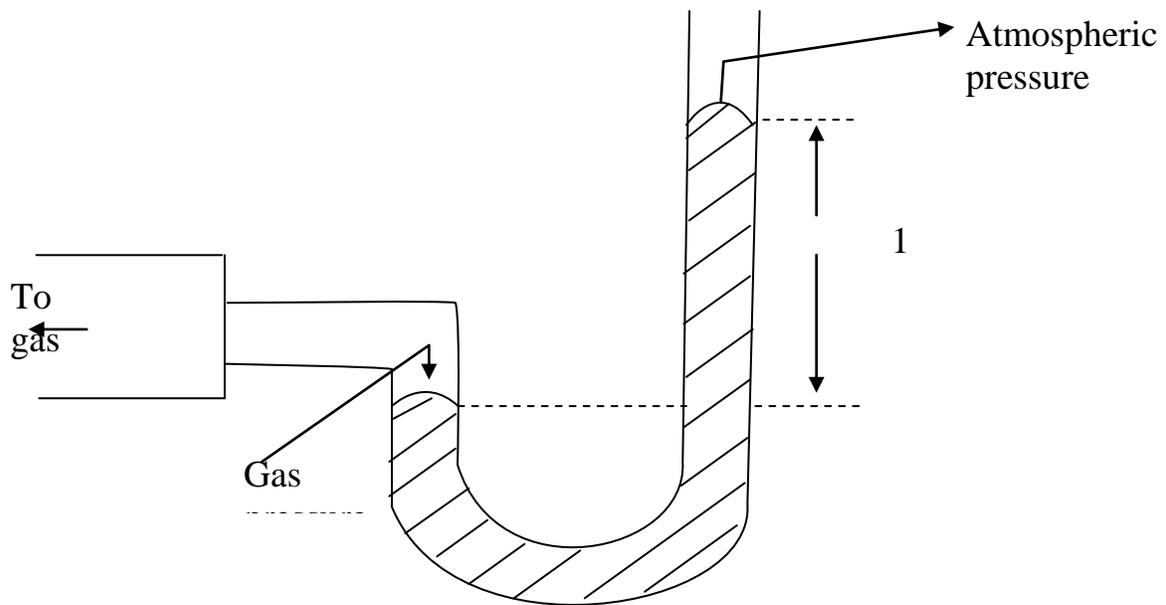


G.H.S

S.3 Physics paper 2

1. a) State the principle of transmission of pressure in fluids.
- b) State two applications of the principle.
- c) State any two factors which affect pressure in fluids.
- d) The diagram below shows an instrument used for measuring gas pressure in a laboratory.



Given that atmospheric pressure is 76 cm Hg ,
Find the pressure of the gas

- i) In cmHg
- ii) In Nm^{-2}

- 2(a). What do you understand by *surface tension*?
- b) State any two factors which affect surface tension of a liquid.
- c). Drops of a liquid X and Y were put on a smooth clean glass and they

settled as shown below.



Identify the liquids most suitable to take on the shapes above.

i) Liquid X Liquid Y

ii) Explain why liquid X and Y take the on the shapes:

Liquid X :

.....
.....

Liquid Y :

.....
.....

iii) In the space below, draw diagrams to show how each of the liquids X and Y would appear in a capillary tube which is open at both ends.

Liquid X :

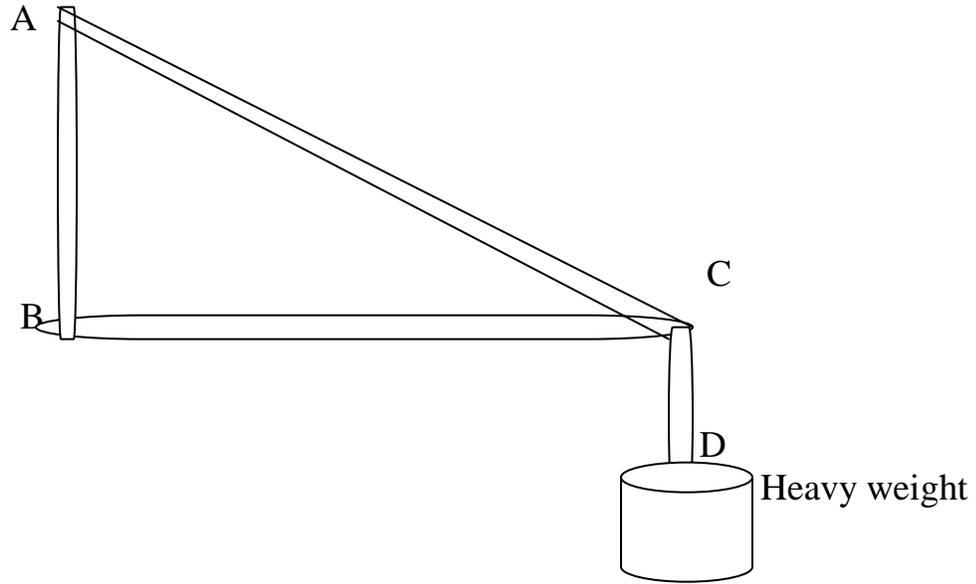
Liquid Y :

3 a) Define the following terms in

i) Strut.....
.....
.....

ii) Tie.....
.....
.....

b(i) Study the following structure carefully and identify struts and ties



ii) State which girders can be replaced with strings.....

c(i) What is concrete?.....

.....
ii) State three properties which make concrete a desirable building material

.....
4 a) Define the following terms

i) Work.....

ii) power.....

b) Boy of mass 60kg runs up a flight of stairs having 30 steps each of height 20cm in 10 seconds. Calculate the work done by the boy and the power developed in his legs.

5.a) State *three* differences between *mass* and *weight*

b)

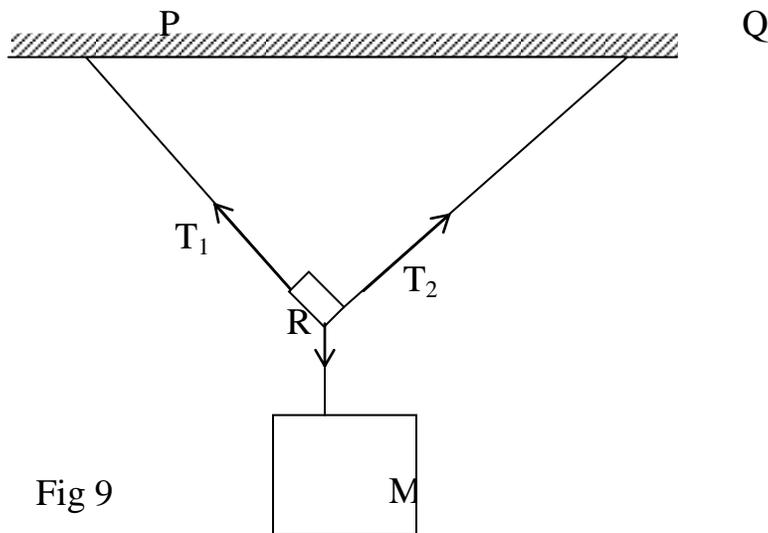


Fig 9 shows a block M suspended from point R of a string PQR such that angle PRQ is at right angle on as shown. If tensions T_1 and T_2 are 2.1N and 2.8N respectively,

What is the weight of M?

6. A boy of mass 75kg climbs a flight of stairs having 30 steps each of 30cm in 5seconds. Calculate the

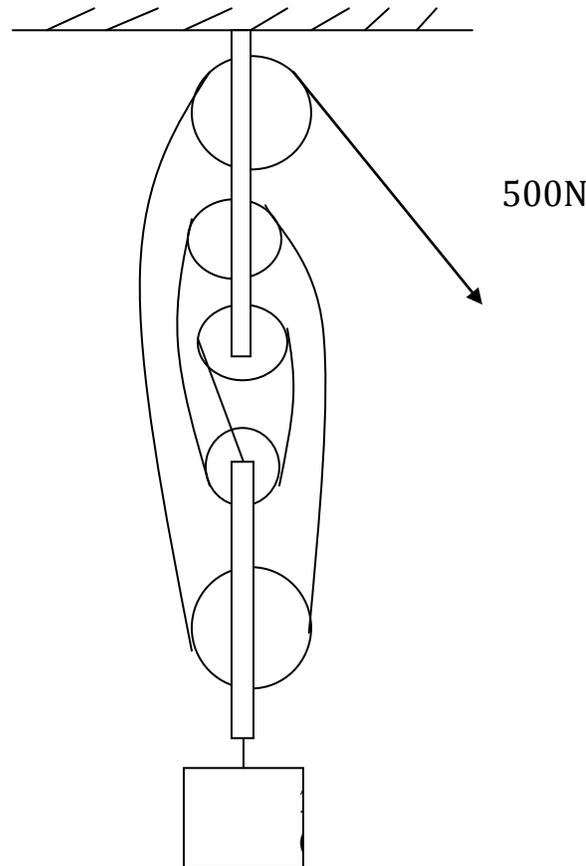
i) Work done by the boy

7. (a) Define the following terms

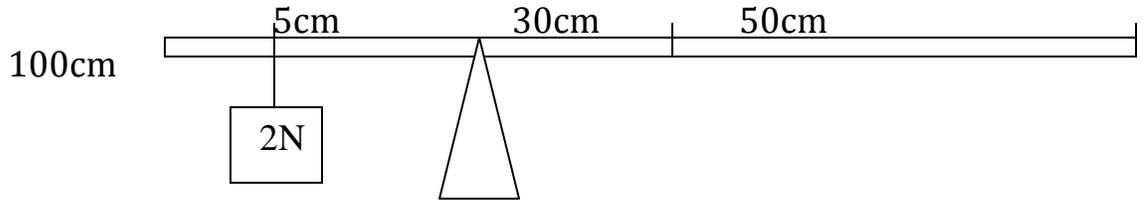
i) Mechanical advantage

- ii) Velocity ratio.....(01)
- iii) Efficiency.....(01)

8) The diagram below shows a pulley system used to raise a load on a construction site.



- i) State the Velocity ratio of the system.....(01)
 - ii) Calculate the mechanical advantage of the system..... (02)
 - iii) Calculate the efficiency of the system.....(03)
 - iv) If the load rises up through 5m, calculate the distance moved by the effort..... (02)
 - v) Calculate the energy wasted by the system..... (03)
- 9 a) State the conditions necessary for a rigid body to be in equilibrium..... (02)
- b) The figure below shows a uniform beam of length 100cm pivoted at 30cm mark and carrying a body of weight 2N.



Calculate the weight of the beam.....(03)

- ii) Explain why it is not advisable to put luggage at the top of a bus as it moves
- c) Describe a simple experiment to determine the mass of a metre rule

- 10 a) State Archimedes principle and the law of floatation.
- b) An object weighs 20kg in air and 15kg when totally immersed in water. It weighs 18kg when immersed in a certain liquid x. If the density of water is 1000kgm^{-3} , calculate the
 - i) volume of the object.....
 - ii) the density of the object.....
 - iii) the density of liquid x.....
- c) Describe an experiment for determining the density of an irregular object which floats in water