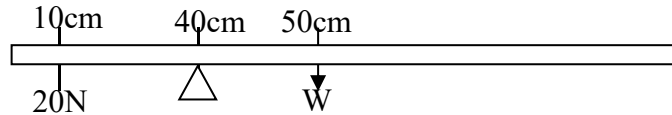


S.2 PHYSICS REVISION QUESTIONS SET 1 TERM III 2018

1. (a) State Hooke's law
- (b) A force of 50N produces an extension of 5mm on a stretching material. What will the extension be when a force of 150N is applied?
2. (a) Define the term moment of force.
- (b) State the principle of moments
- (c) The diagram below shows a system in equilibrium



Find the value of the weight W of the ruler.

- (d) List three applications of the principle of moments
3. (a) (i) Define the term work.
- (ii) State the S.I unit of work.
- (iii) A constant force of 12N acts on a body through a distance of 240cm. Find the work done.
- (b) A ball of mass 2kg is dropped from a height of 20m
 - (i) Find the potential energy of the ball just before it is released
 - (ii) Calculate the kinetic energy on hitting the ground
4. (a) Define the term pressure and state its S.I units
- (b) A brick of mass 3kg measures 6cm x 4cm x 3cm. Calculate the:
 - (i) greatest pressure,
 - (ii) least pressure it can exert when placed on a flat surface?
- (c) Describe an experiment to investigate the effect of depth on pressure in a fluid.
- (d) The difference between the atmospheric pressure at the top and the bottom of a mountain is $1 \times 10^4 \text{ N/m}^2$. If the density of air is 1.25 Kg/m^3 , calculate the height of the mountain
- (e) (i) State the principle of transmission of pressure in fluids
- (ii) State one application of the principle
5. (a) Distinguish between cohesion and adhesion.
- (b) Sketch diagrams to show the level of liquid in a capillary tube that is immersed in a liquid which has greater
 - (i) cohesion than adhesion
 - (ii) Adhesion than cohesion
- (C) (i) State the law of conservation of energy. (01 mark)
- (ii) A stone of mass 0.2kg is thrown vertically upwards attaining maximum potential energy of 16J. Calculate its initial velocity. (03 marks)
6. (a) (i) What is a notch? (01 mark)
- (ii) State four ways by which damage due to notches may be prevented. (04 marks)
- (b) Why is a bicycle frame made of hollow cylindrical pipes? (03 marks)
7. (a) State the conditions for a body to be in
 - (i) Stable equilibrium (01 mark)
 - (ii) Neutral equilibrium (01 mark)
- (b) Explain why bus passengers' luggage is loaded in the boots rather than the rack on top of the bus. (04 marks)

1. (a) Define the focal point of a convex mirror (01)
- (b) An object is released from a height of 10m above a plane mirror.
(i) What distance must it drop through in order to be 5m away from its image? (03)
(ii) What property have you used in b(i)? (01)
- (c) An object 4cm high is placed 2.4cm from a concave mirror of focal length 8cm. draw a ray diagram to scale (on a graph paper) to find the position, size and nature of the image formed. (Scale 1cm: 2cm) (05)
- (d) Explain why diverging mirrors are used for checking under cars in security operations. (02)
2. (a) State the principle of moments (02)
- (b) State the conditions for a body to be in equilibrium (02)
- (c) Explain the following observations:
(i) You are likely to be easily knocked over when standing on one foot. (02)
(ii) A laboratory retort stand has a large heavy base. (02)
- (d) A uniform half-metre rule suspended from the 40cm mark is balanced when a 20g mass is hung from the 48cm mark. Determine the weight of the rule. (04)
3. (a) Define the following as applied to machines
(i) Mechanical advantage (01)
(ii) Velocity ratio (01)
(iii) Efficiency (01)
- (b) By means of a lever, an effort of 50N moves a Load of 200N through 3m. If the effort moves a distance of 16m, calculate
(i) Mechanical advantage (02)
(ii) Velocity ratio (02)
(iii) Efficiency of the machine. (03)
- (c) Why is the efficiency of the machine in b above less than 100%? (02)