

---

**KENYA NATIONAL EXAMINATION COUNCIL**  
**REVISION MOCK EXAMS 2016**  
**TOP NATIONAL SCHOOLS**

**ALLIANCE GIRLS HIGH SCHOOL**

**232/1**

**PHYSICS**

**PAPER 1**

**SCHOOLS NET KENYA**

Osiligi House, Opposite KCB, Ground Floor

Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27

E-mail: [infosnkenya@gmail.com](mailto:infosnkenya@gmail.com) | Website: [www.schoolsnetkenya.com](http://www.schoolsnetkenya.com)

# ALLIANCE GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

232/1  
PHYSICS  
PAPER 1

1. Figure 1 below shows a section of a burette containing some water

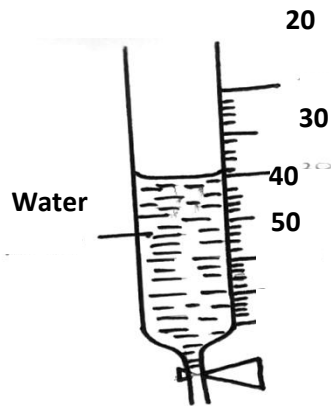


Figure 1

Determine the reading on burette if four (4) drops of water each of volume  $0.5\text{cm}^3$  are added  
(2mks)

2. A uniform wooden plank weighing 50N and 5m long is suspended by two ropes A and B, 1.5m apart. A is 2m from one end and B is 1.5m from the other end as shown in figure 2 below. A concrete block of weight 100N is suspended from the centre of the plank  
Calculate the tension  $T_A$  in string A (3mks)
3. A steel sphere released in a tall transparent water jar attains a constant velocity after a while. The same sphere released in air falls at a constant acceleration. Explain with a reason the difference in its motion in water and in air (2mks)
4. The stability of a body can be increased by increasing the base area and lowering its centre of gravity. State one way of lowering its centre of gravity. (1mk)
5. To what temperature must  $2,000\text{cm}^3$  of a gas at  $27^\circ\text{C}$  be heated at constant pressure in order for its volume to increase to  $25000\text{cm}^3$ ? (3mks)
6. A body of mass 25kg moving with uniform acceleration has an initial momentum of  $60\text{kgm/s}$  and after 10s the momentum is  $90\text{kgm/s}$ . calculate the acceleration of the body (3mks)
7. A load was raised using the system shown below. The system was then modified as in (b) and used to raise the same load

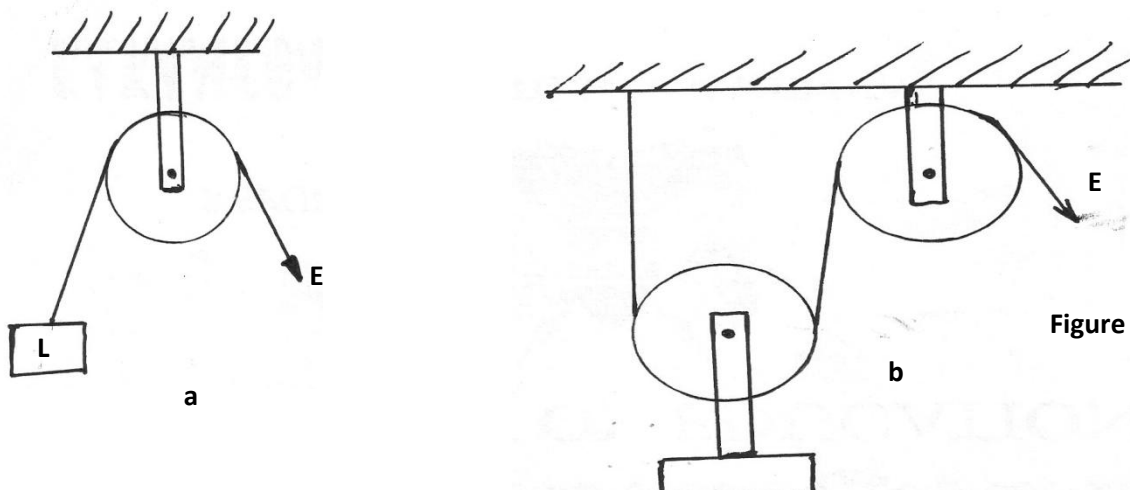
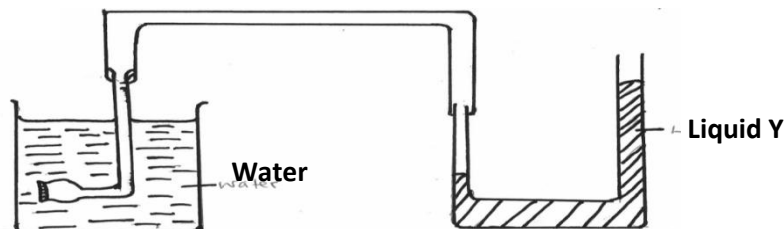


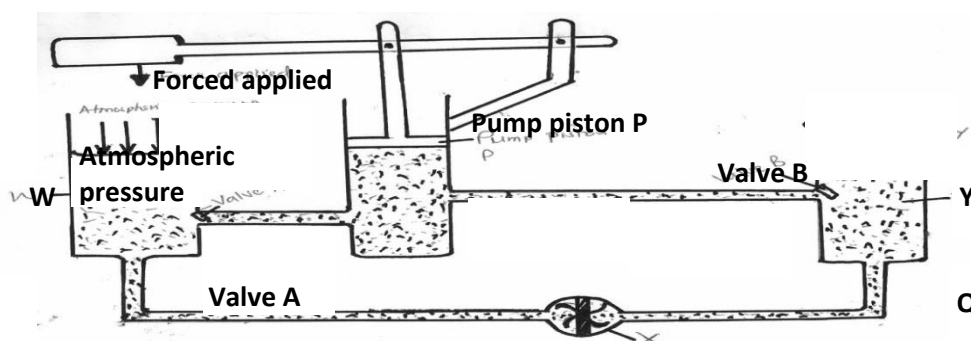
Figure 3

- State and explain the change in efficiency (2mks)
8. State two physical properties of a material medium which may be used to measure temperature (2mks)
9. On increasing the temperature of a fixed mass of a gas its pressure was noted to increase. Explain (2mks)
10. The figure 4 below shows a set used in a physics demonstration



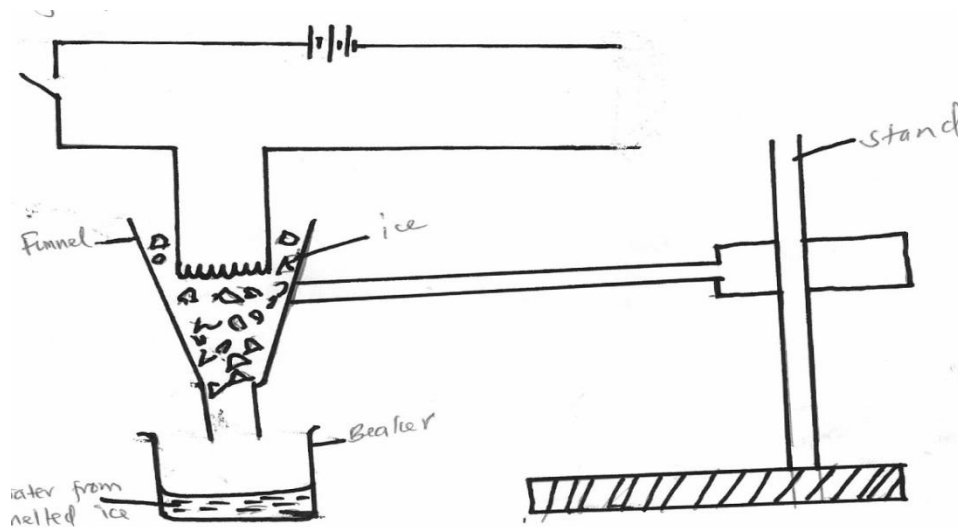
Briefly suggest **two** conclusions that may be drawn from the experiment (2mks)

11. A 60 litre giant density bottle weighs 100N when empty. What will be its mass when filled with liquid W whose density is  $0.72\text{g/cm}^3$ ? ( $g=10\text{N/kg}$ ) (3mks)
12. Figure 5 below is a hydraulic jack system



- (a) Name the parts labeled W,X and Y (3mks)
- (b) Briefly explain how the device may be used to raise a load at the position shown (3mks)
- (c) Part W is left open to the atmosphere as indicated. Explain (2mks)
- (d) State two ways by which the mechanical advantage of the device may be increased (2mks)
- (e) One such hydraulic brake system was used to lift a car whose mass was 1200kg. The cross sectional area of Q was  $5000\text{cm}^2$  and that of P was  $5\text{cm}^2$ . Determine the force exerted on the pump piston (3mks)
13. (a) Define specific latent heat of fusion

(1mk)



(b) State two factors which affect freezing point of ice

(1mk)

(c) Figure 6 below illustrates an experiment in which electrical energy is used to determine specific latent heat of fusion

Stand

Funnel

Ice

Beaker

V

melted ice

- (i) Other than time, state other measurements that would be used to determine the quantity of heat  $Q$  absorbed by ice in unit time (2mks)
- (ii) Complete the circuit to show connection of the essential circuit components (3mks)
- (iii) Explain how to proceed and determine the value of  $L_{f1}$ , the specific latent heat of fusion of ice (3mks)
- (d) In a similar experiment, the following results were obtained when heat was switched on for 5 minutes

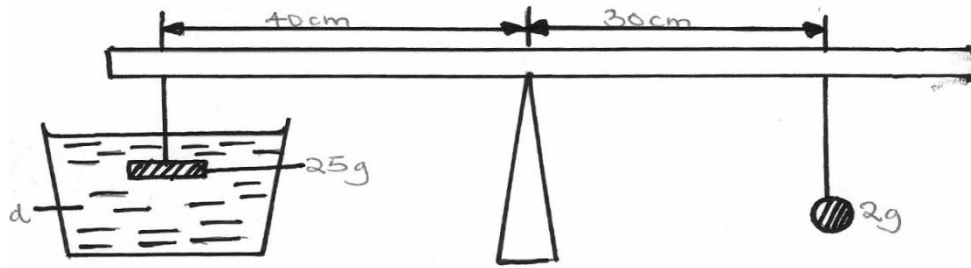
Voltmeter reading = 6.0V

Ammeter reading = 1.25A

- (i) Calculate the power rating of the heater (3mks)
- (ii) If by the end of the experiment, 200g of water at 0°C was collected, determine the latent heat of fusion of ice (2mks)

14. (a) State Archimedes principle. (1mk)

(b) Figure 7 below shows a block of mass 25g and density 200 kg m<sup>-3</sup> submerged in a certain liquid while suspended from a horizontal beam by means of a thread. A mass of 2g is suspended from the beam as shown



- (i) Determine the upthrust force acting on the block (3mks)
- (ii) Calculate the density of the liquid (3mks)
- (c) Figure 8 shows a piece of cork held with a light thread attached to the bottom of a beaker. The beaker is filled with water

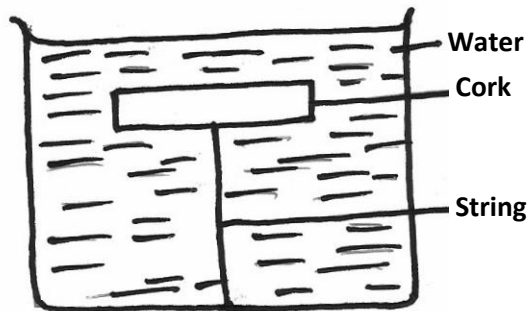
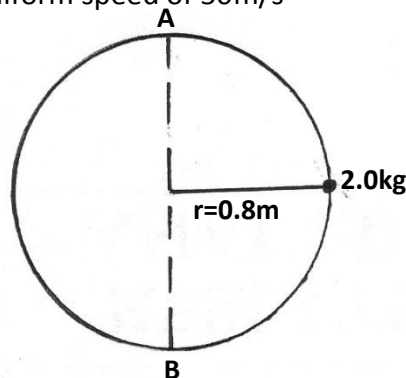


Fig 8

- (i) Indicate and label on the diagram the forces acting on the cork (3mks)
- (ii) Write an expression showing the relationship between the forces (1mk)
- (d) A solid displaces  $8.5\text{cm}^3$  of a liquid when floating and  $11.5\text{cm}^3$  when fully submerged in the liquid. The density of the solid is  $0.8\text{g/cm}^3$ . Determine the upthrust on the solid when floating (3mks)

15. (a) Define angular velocity (1mk)
- (b) The diagram below fig.9 shows an object of mass  $2.0\text{kg}$  being whirled in a vertical circle of radius  $0.8$ , at a uniform speed of  $50\text{m/s}$



Determine

- (i) The centripetal force on the object (3mks)
- (ii) The tension in the string when the object is at **A** (3mks)
- (iii) The tension in the string when the object is at **B** (3mks)

- (c) The speed of rotation is gradually increased until the string snaps. At what point is the string likely to snap? Explain (3mks)