NAME .....ADM.....CLASS.....
PHYSICS FORM 3
END TERM EXAM – 2020

1. State three factors affect the speed of sound. (3mks)

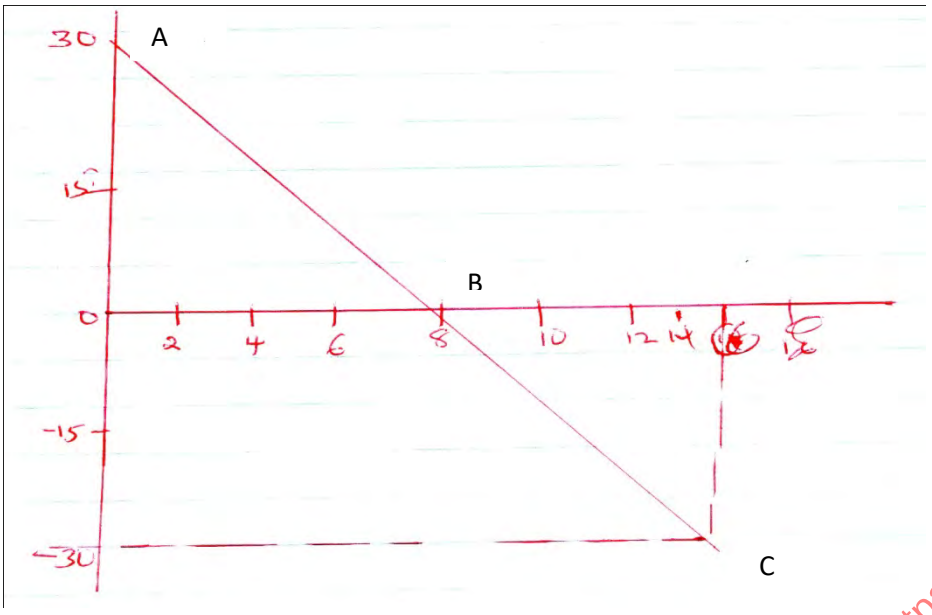
2. A policeman standing between two high walls fire a gun. He hears the first echo after 3 seconds and the next 2 seconds later. What is the distance between the walls. (take velocity of sound 330m/s) 4mks)

3. State two characteristics of image formed by plane mirrors. (2mks)

4. An object is 2500cm tall is at a point 8m from the pinhole camera. If the image is 8.6m from the pinhole calculate the size of two image. (3mks)

5. a) Velocity is a vector quantity speed is a scalar quantity. State the other difference between the two. (2mks)

b) The figure below shows a velocity time graph for the motion of a certain body. Study the graph and answer the questions that follows.



i) Describe the motion of the body in region AB and BC. (2mks)

ii) Determine the displacement covered by the body in its period. (2mks)

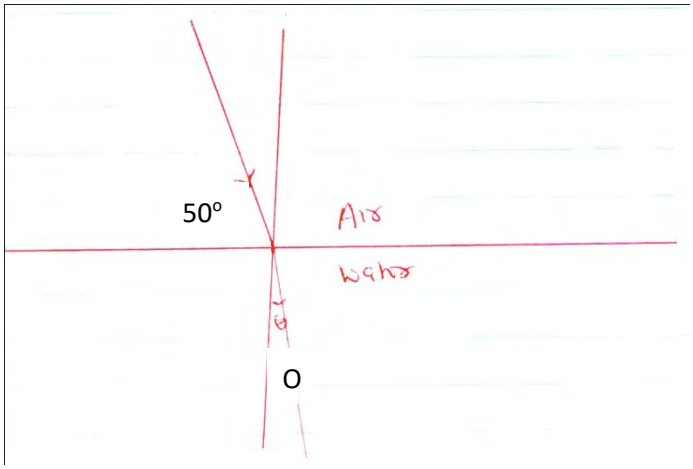
6. A gun is used to fire a bullet at a velocity of 20m/s from the top of a cliff which is 800m high.
   i) Draw the trajectory of the bullet until it comes to rest. (1mk)

   ii) Determine the time taken by the bullet to reach the ground. (3mks)

   iii) Range of the bullet. (2mks)

7. State Snell's law. (2mk)

ii) The diagram below shows a ray of light travelling from air to water.



iii) Calculates the refractive index for light travelling from glass to air given that ${}_{a}n_{g}$ = 1.33. (2mks)

iv) A curve at bottom of a jar appears to be 13.2cm below the surface of glycerin, calculate the height of the colom of glycerin in the jar. Given the refracture index glycerin is (1.33) (3mks)

8. State one difference between electromagnetic and mechanical wares giving an example in each. (4mks)

9. A uniform bar is pointed at a pivoted 30cm from one end. A force of 12N at the shorter end keeps the bar in equilibrium. If the length of the bar is 1 meter, determine the weight of the bar. (3mks)

10. What is a virtual image? (1mk)

11. A form two students of Anestar boys lanet found his dry cell leaking on the removing them from his torch. He asked his friend what could be the cause of this. What answer did his friend provide? (2mks)

12. A conductor is slowly trough the cap of a positively chaged electroscope. The leaf first collapses and then diverges. State the chage on the conductor. (1mk)

13. The refrachre index of water is $^{4}/_{3}$ and that of glass $^{3}/_{2}$ calculate the refrachre index of glass with respect to water. (3mks)

14. State the conditions necessary for total internal reflection to occur. (2mks)

15. Differentiate between Distance and displacement. (1mk)

16 . (a) Distinguish between streamline and turbulent flow. (2 mks)

(b) The figure below shows two light sheets of paper arranged as shown;

Explain the observations made when air is blown at the same speed and at the same time at point A and B. (2 mks)

(c) The diagram below shows an incompressible fluid moving through a tube of varied cross section al area. If the area of the mouth region is 0.055m2, calculate the diameter of the lower region. (3 mks)

(d) Explain why a high speed jet has a sharp-nose shape. (1 mk)