

NAME:CLASS: ADM.NO. :

PHYSICS FORM THREE

TIME: 2 HRS.

Answer All questions in the spaces provided.

1. Define the terms velocity and acceleration. (2mks)

2. Give a reason why it is necessary to leave the caps of the cell open when charging on accumulator. (1mk)

3. One method of producing a weak magnet is to hold a steel rod in the north south direction and hammer it continuously for some time using the domain theory of magnetism. Explain how this method works. (2mks)

4. A body accelerates uniformly from its initial velocity u , to the final velocity, v , in time t . the distance travelled during this is s . If acceleration is donated by letter a , show that;
 - i) $v = u + at$ (2mks)

 - ii) $s = ut + \frac{1}{2} at^2$. (3mks)

 - iii) $v^2 = u^2 + 2as$. (2mks)

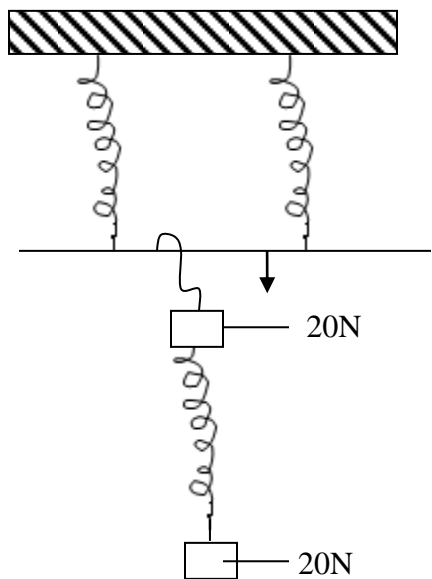
5. State two uses of a charged gold leaf electroscope. (2mks)

6. State the number of images formed when an object is between two plane mirrors placed in parallel axis. (1mk)

7. An object is placed 15cm in front of a concave mirror of focal length 10cm. calculate the image distance 3 mks

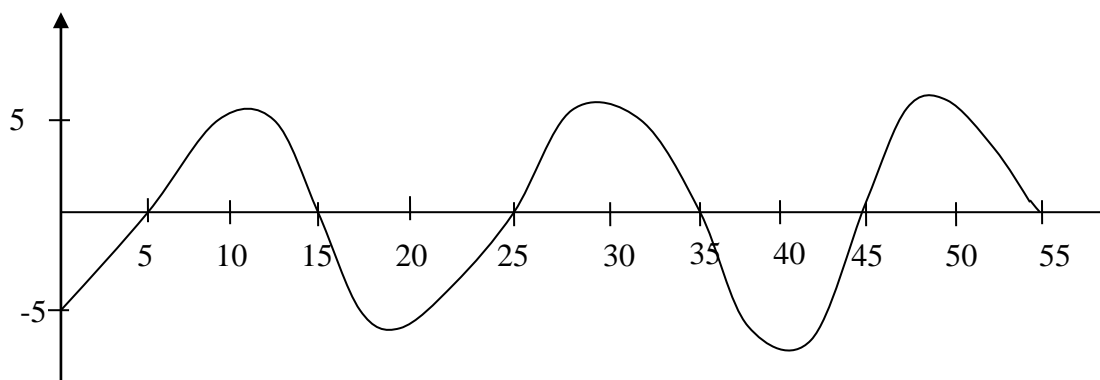
8. (a) Define the term spring constant K. (1mk)

(b) The three springs shown below are identical and have negligible weight. The extension produced on the system of the is 20cm.



Determine spring constant of each spring. (3mks)

9. Figure below shows a displacement – time graph per a progressive wave.



- i) State the amplitude of the wave. (1mk)
- ii) Determine the frequency of the wave. (2mks)
- iii) Given that the velocity of the wave is 20m/s, determine its wavelength. (2mks)

10. A ray of light passing from air to glass is incident at angle of 30° . Calculate the angle of refraction in the glass if the refractive index of glass is 1.50. (3mks)

11. A ball is thrown horizontally from the top of a vertical tower and strike the ground at point 50m from the bottom of the tower given that the height of the tower is 45m, determine the;

- i) Time taken by the ball to hit the ground. (3mks)
- ii) The initial horizontal velocity of the ball. (3mks)
- iii) Vertical velocity of the ball just before striking the ground (Take $g=10\text{m/s}^{-2}$)
12. Explain how the pressure in a moving fluid varies with the speed of the fluid. (1mk)
13. State snells law of refraction. Describe an experiment to verify it. (5mks)
14. Define critical angle. (1mk)

15. A stone is let to fall vertically down from a window on the 10th floor of a building 40m above the ground. Find the time taken by the stone to reach the ground. (3mks)
16. What is the difference between longitudinal and transverse wave. (1mk)