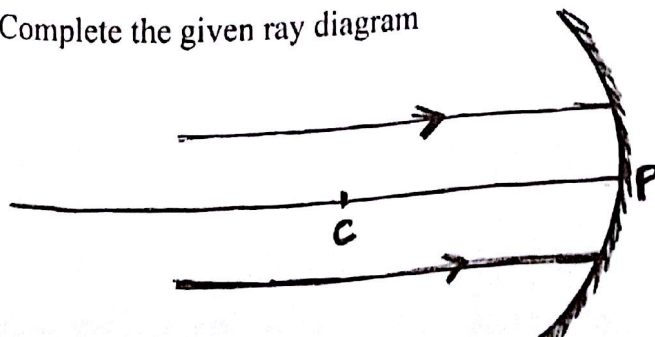


SECTION A (40 marks)

1.
 - a. List the characteristics of non-contact force (2)
 - b. "More the mass, more difficult is to move the body from rest." Explain the statement using an example. (2)
 - c. How does the acceleration produced by a given force depend on mass of the body? Draw a graph to show it. (2)
 - d. It is advantageous to run before taking a long jump. Explain. (2)
 - e. Obtain the relation between g and G (2)

2.
 - a. Define the term electric current (2)
 - b. State and define the standard unit of electric current (2)
 - c. A current of 1.5 A flows through a conductor for 2s. What amount of charge passes through the conductor? (2)
 - d. Differentiate between closed and open circuits (2)
 - e. What is responsible for the flow of current through
 - (i) a metallic conductor (ii) an electrolyte (2)

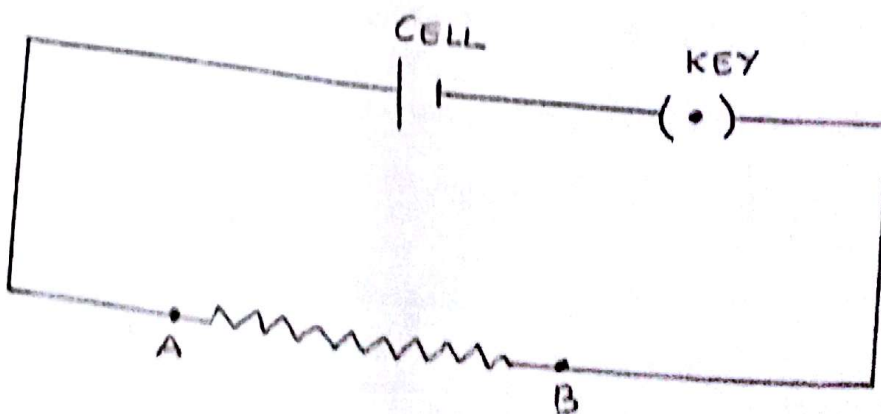
3.
 - a. State the laws of reflection. (2)
 - b. What are the characteristics of image formed by a plane mirror? (2)
 - c. Differentiate between real and virtual image (any 2) (2)
 - d. Define the terms: (i) Principal axis (ii) Radius of curvature (2)
 - e. Complete the given ray diagram (2)



4. a. Define (i) Wavelength (ii) Frequency (2)
- b. Derive the relation connecting the wavelength, velocity and frequency of a sound wave. (2)
- c. A longitudinal wave travels at a speed of 0.3 m/s and the frequency of the wave is 20 Hz. Find the distance of separation between 2 consecutive compressions. (2)
- d. List any 2 properties of ultrasounds which audible sounds does not possess. (2)
- e. What are sonic sounds? What is the audibility range of human beings? (2)

SECTION-B(40 marks)

5. a. (i) Define linear magnification.
- (ii) Which mirror will you prefer to use as a rear view mirror? Give reason. (3)
- b. (i) Draw a ray diagram to show the formation of image by a concave mirror when the object is between the centre of curvature C and principal focus F.
- (ii) States the characteristics of the image formed. (4)
- c. List any 3 uses of concave mirrors (3)
6. a. You are given a resistance wire AB connected with a cell and a key. You are required to measure the current in the wire AB and the potential difference across it. Name the instruments that you would use and draw a labelled diagram to show how are they connected. Also mark the direction of flow of current in each circuit. (5)



- b. List the factors affecting the resistance of a conductor. (3)
- c. A cell of potential difference 12V is connected to a bulb. The resistance of the filament of the bulb when it glows is 24Ω . Find the current drawn from the cell. (2)
7. a. Explain the factors affecting the speed of sound in gas (4)
- b. Assuming the speed of sound in air equal to 340m/s and in water equal to 1360m/s, find the time taken to travel a distance of 1700m by sound in (i)air (ii)water. (3)
- c. State the requirements of the medium for the propagation of sound (3)
8. a. State the universal law of gravitation. Give its importance. (3)
- b. Give the mathematical derivation of Newton's second law. Under what conditions does the relation hold? (4)
- c. A ball is released from a height and reaches the ground in 3s. If $g=9.8\text{m/s}^2$, find
- (i) The height from which the ball was released
- (ii) The velocity with which the ball strikes the ground (3)