FORM FOUR CLUSTER KCSE MODEL8
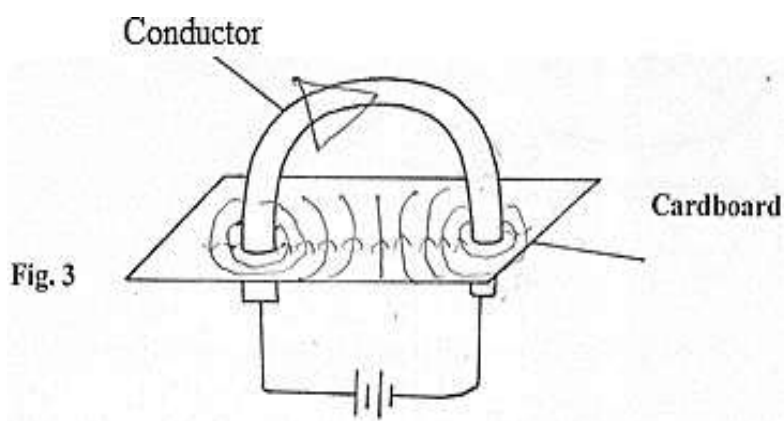
PHYSICS PAPER 2 ANSWER

SECTION A (25 Marks)

Answer all questions in this section

1. To dissipate by point actions the charge that may have been build upon the body due to friction with air which may cause sparking or fire. (1mk)

2. To concentrate the magnetic field for the maximum time linkage. (1mk)

3.
$$n_1 \sin Q = n_2 \sin Q_2$$
$$\frac{6}{3} \sin 30^0 = \frac{3}{2} \sin Q_2$$
$$= \sin Q_2 = 0.0667 \qquad \text{(3mks)}$$
$$= Q_2 = 41.813^0$$

4. **(a) Name the parts A and B**

   A. Zinc.

   B. Copper. (1mk)

   (b) This is because a simple cell polarization and local action. (2mks)

5. - Negative ions in the flame are attracted to the rod diverging part of the flame towards it while ions are repelled away.

6. - Pushing the button completes the current making the solenoid to be magnetic. The soft iron armature is attracted towards the solenoid making hammer to strike the gong. This breaks the contact demagnetizing the solenoid hence the armature is pulled back by spring. The process repeats.

7. When the balloon is rubbed repels after electrons from the surface of the wall leaving it +vely charged. The –vely charged balloon is attracted to the +vely charged surface of the wall.
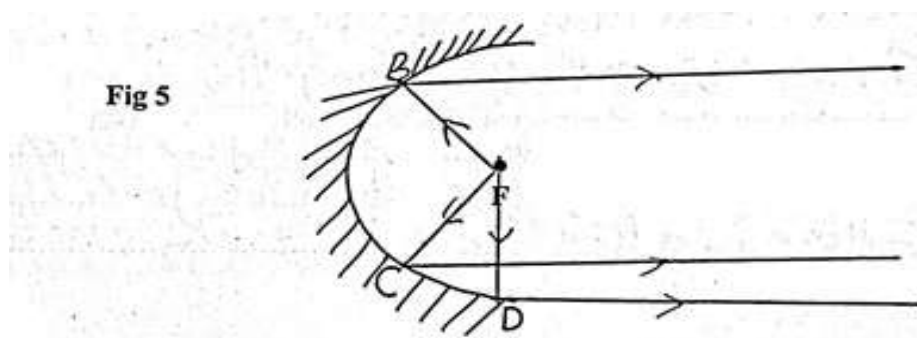
8.

Fig. 3

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9.

$$CP = 10 + 10 = 20\mu f$$

$$\frac{1}{CT} = \frac{1}{20} + \frac{1}{10} = \frac{1+2}{20} = \frac{3}{20}$$

$$C_T = \frac{20}{3} \qquad \text{(3mks)}$$

$$= 6.667\,\mu F$$

10.

Fig 5

11. – Charge in velocity due to different in R.I.
     - The angle of incidence.

12. –Length.

     -Temperature.
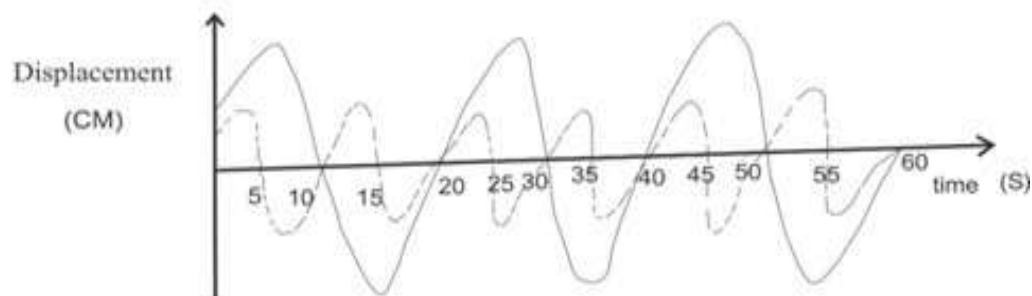
     -Thickness

SECTION B (55 Marks)
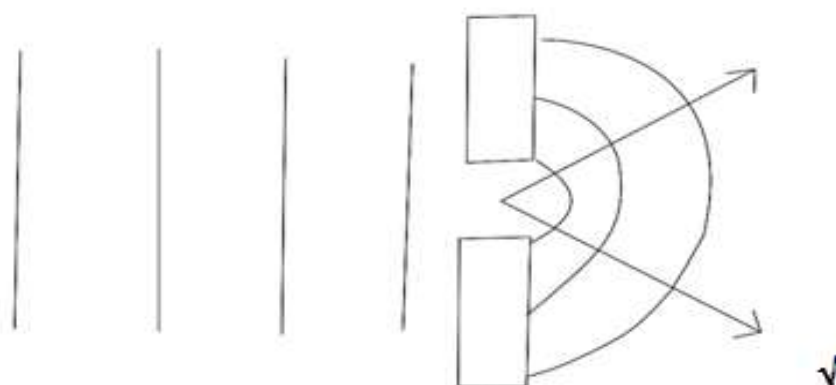
Answer all questions in this section

13.

(a) (i)   30cm. √
     (ii) $T = 30 - 10 = 20$ sec. √

          $f = \dfrac{1}{T}$ √

          $= \dfrac{1}{20}$ √

          $= 0.05 Hz$ √

     (iii)

Correct frequency √
Correct amplitude √
(at least two complete cycles)

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(b)   (i)

(ii)   I   Waves are not diffracted. √
        II   Waves undergo more diffraction/more curved. √

14.

(a)   (i) $122 - 90 = 32^0$

(ii) $n = \dfrac{\sin r}{\sin r}$

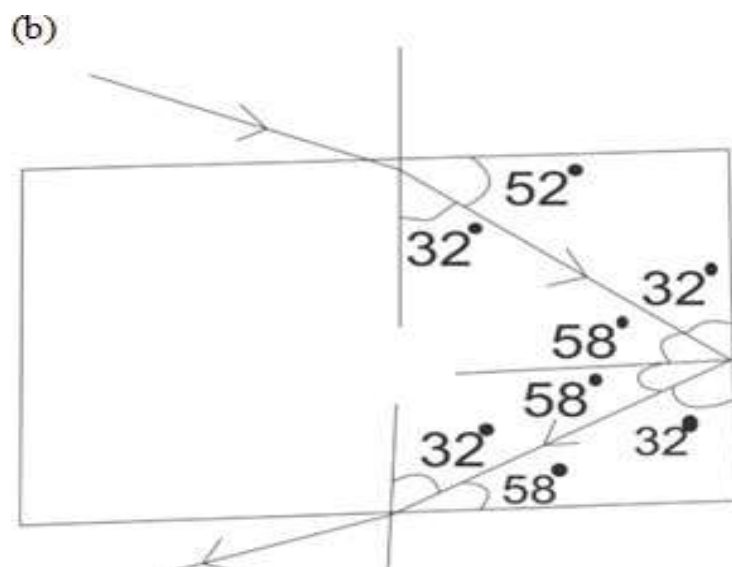$= \dfrac{\sin 60}{\sin 32}$

$= \dfrac{0.8660}{0.5299}$

$= 1.634$

(iii) $Sin\ C = \dfrac{1}{n}$

$c = \sin^{-1} \dfrac{1}{1.634}$

$= \sin^{-1} 0.6120$

$= 37.73^0$

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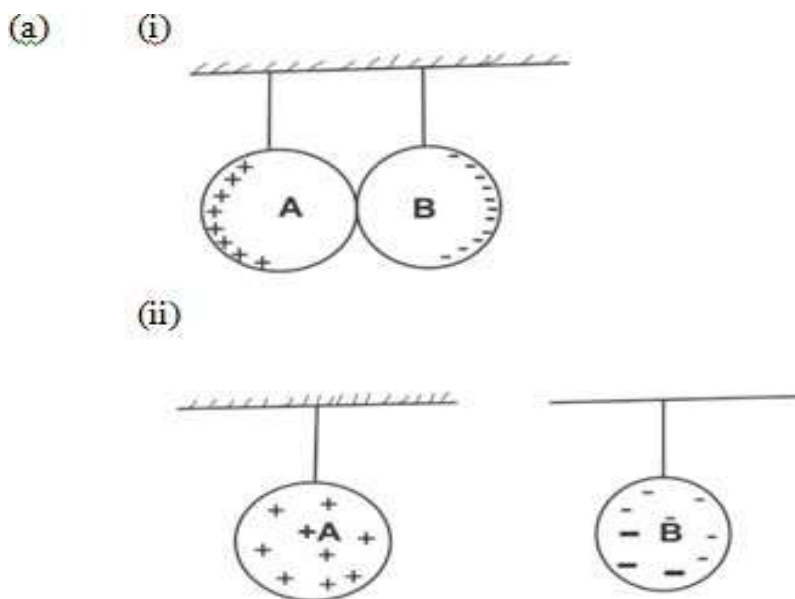E-mail: infosnkenya@gmail.com | ORDER ANSWERS ONLINE at www.schoolsnetkenya.com
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(b)

-Totally internally reflected ray

-Emerging ray

-Angles correctly indicated

(c) Monochromatic light is light of single colour

15.

(a) (i)

(ii)

Even distribution of charges

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(b)   (i) $$\frac{1}{C_T} = \frac{1}{C_1} + \frac{1}{C_2}$$

$$\frac{1}{C_T} = \frac{1}{3\mu F} + \frac{1}{6\mu F}$$
$$C_T = 2\mu F$$

(ii) $Q = C_T V$ √
$$= 2 \times 10^6 \times 10 \quad \text{√√}$$
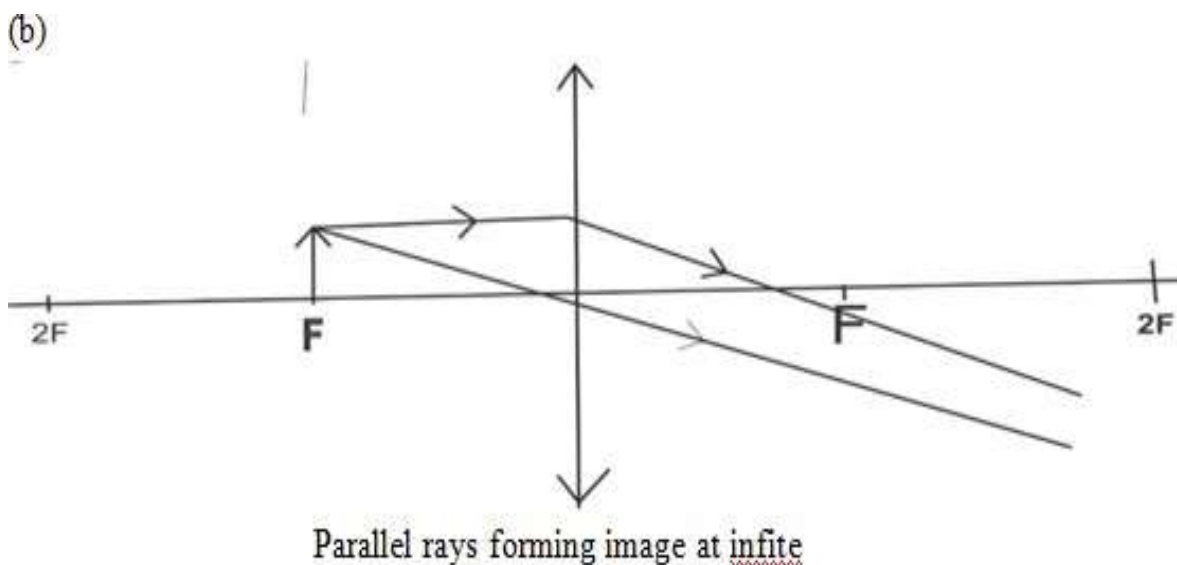$$= 2.0 \times 10^{-5} C$$

(iii) $2.0 \times 10^{-5} C$

(c) -Area of overlap. √

-Type of dielectric material. √

-Distance of separation. Any 2x1

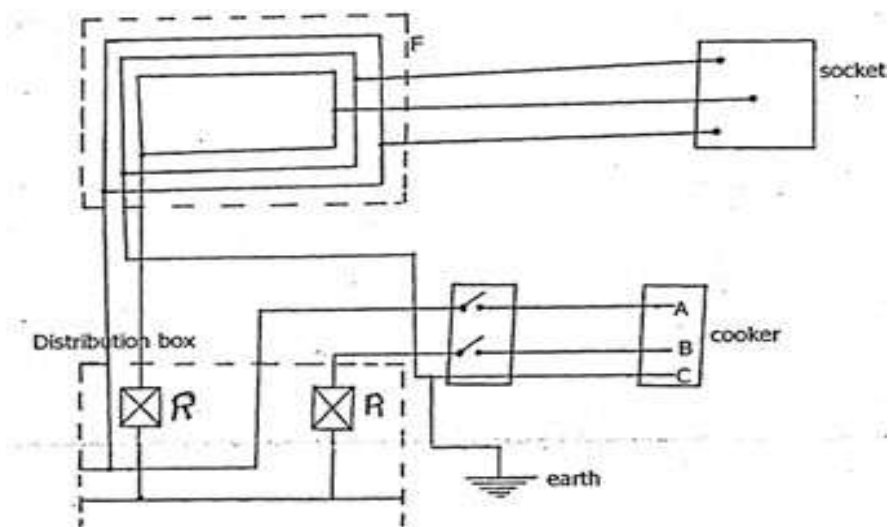16.   a) Distance between the optical centre and the principle focus.

(b)

Parallel rays forming image at infite

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Figure 14

(ii) -Diminished.

-Real.

-Inverted.

17. (a) To reduce power losses √ since high voltage implies low current thus less heating according to I^2R

(b) (i) I Ring circuit. √

II A-Neutral. √

B-Live. √

(ii) R is connected to B and not A to ensure that when it breaks the circuit, no device remains live.

(iii) Fuse. √

(iv) Earthing guards against electric shocks. √

(c) (i) $I = \dfrac{P}{V}$ √

$\dfrac{1800}{240} = 7.5A$ √

(ii) $pt = M\omega C\omega\theta + \varsigma\theta$

$1800t = 54 \times 4200 \times 70 + 9000 \times 70$ √

$t = 9170 \ secs \ (2.55hrs)$

$Total \ \cos t = 2.55 \times 30 \times 1.8 \times 6.70$ √

$= 922.60 \ sh$

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