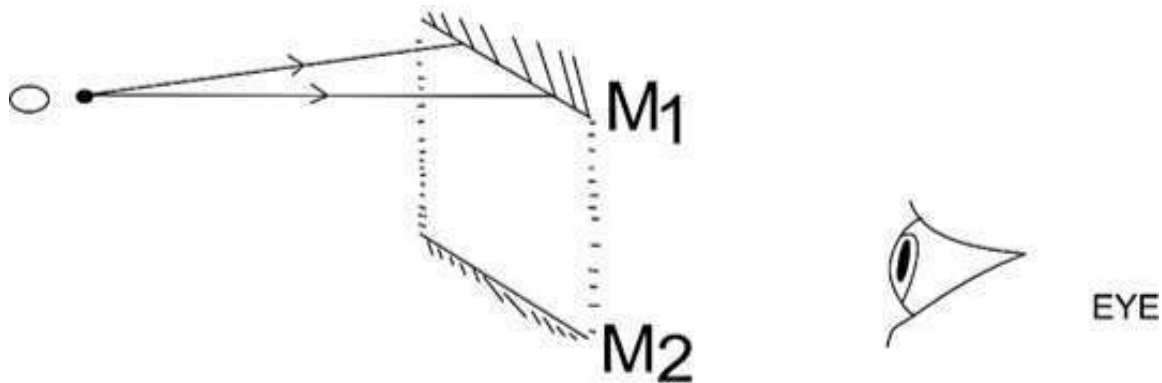


**FORM FOUR CLUSTER KCSE MODEL 4**  
**PHYSICS PAPER 2 QUESTIONS**

**SECTION A (25 Marks)**

Answer all the questions in this section in the spaces provided

1. Figure 1 shows an object, O being viewed using two inclined mirrors M1 and M2 parallel to each other.



**Figure 1**

Complete the diagram by drawing the rays to show the position of the image, I as seen by the eye.

2. A positively charged conductor is slowly brought near the cap of a charged electroscope.

The leaf first collapse and then diverges. State the charge on the electroscope.

.....

.....

3. State two advantages of an alkaline cell over a lead acid cell.

.....

4. Figure 2 shows the magnetic field pattern between poles P and Q of magnets

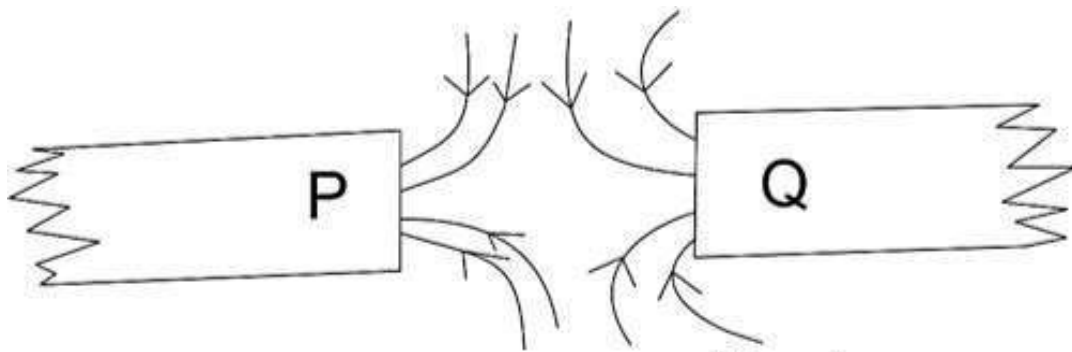


Figure 2

i) Identify the poles P and Q

P.....

.....

Q.....

.....

.....

ii) State with a reason which pole is stronger.

.....

.....

.....

5. The frequency of an electromagnetic wave is  $5.0 \times 10^6 \text{ Hz}$ . Determine its wavelength.

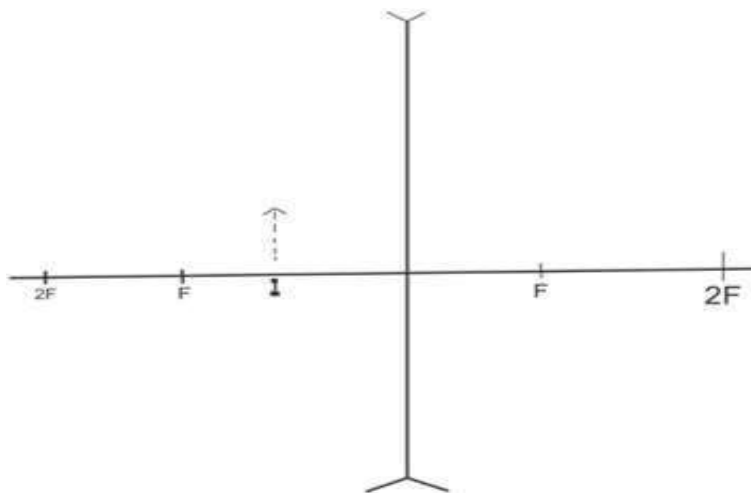
(Take speed of light as  $3.0 \times 10^8 \text{ ms}^{-1}$ )

.....

.....

.....

6. Figure 3 shows the image, I formed when an object is placed in front of a concave lens



Use suitable rays to locate the position of the object.

7. A battery circulates charge round a circuit for 1.5 minutes.

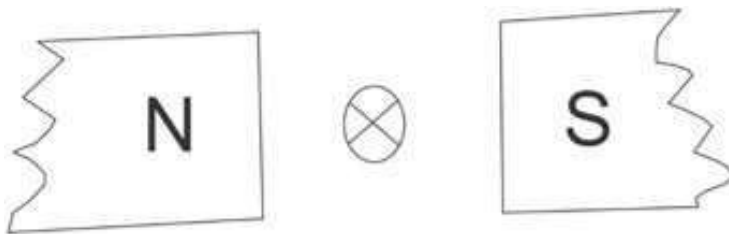
What quantity of charge flows through the circuit if current is held at 2.5A?

.....  
.....

8. State one advantage of generating a.c. rather than d.c in power generating stations.

.....  
.....

9. Figure 4 shows a current carrying conductor placed between poles of strong magnets



i) Sketch the magnetic field pattern between the poles.

ii) Indicate the direction of force on the conductor.

10. State one condition under which Ohm's law is obeyed in a metal conductor.

.....  
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.....  
.....  
.....

11. Figure 5 shows a graph of relationship between the attractive force of an electromagnet and magnetizing current

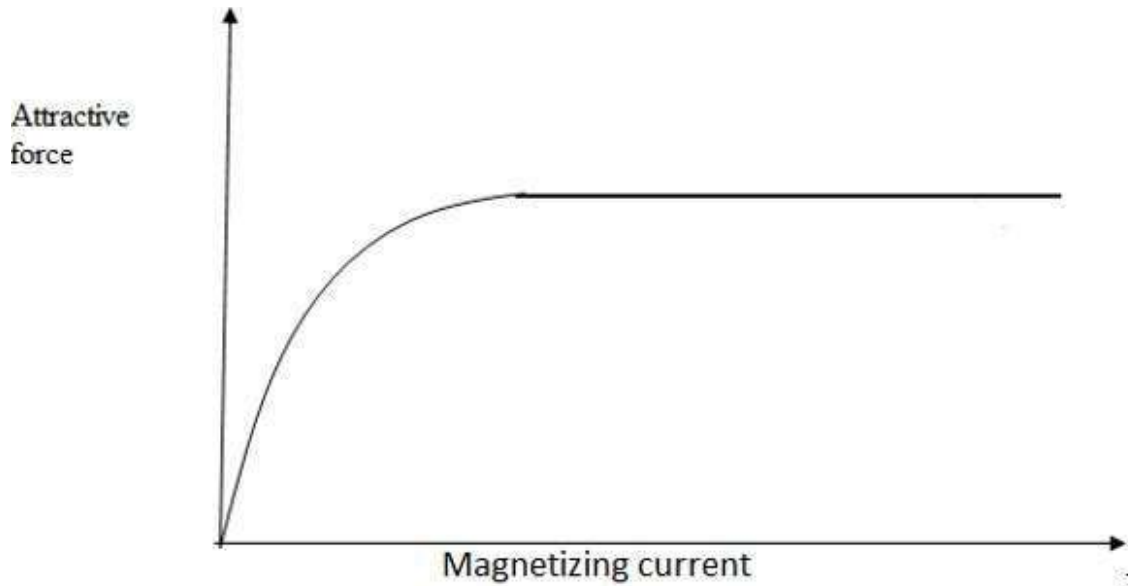


Figure 5

Explain the shape of the curve in terms of the domain theory.

.....  
 .....

12. State one disadvantage of using convex mirrors as driving mirrors.

.....  
 .....

13. Figure 6 shows water waves moving from a source, S.

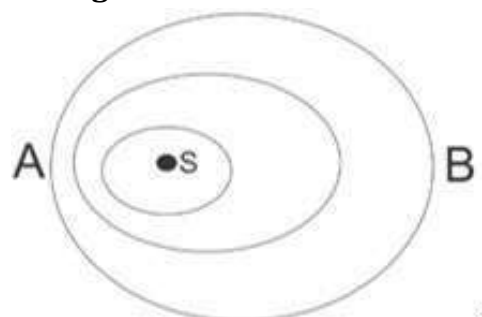


Figure 6

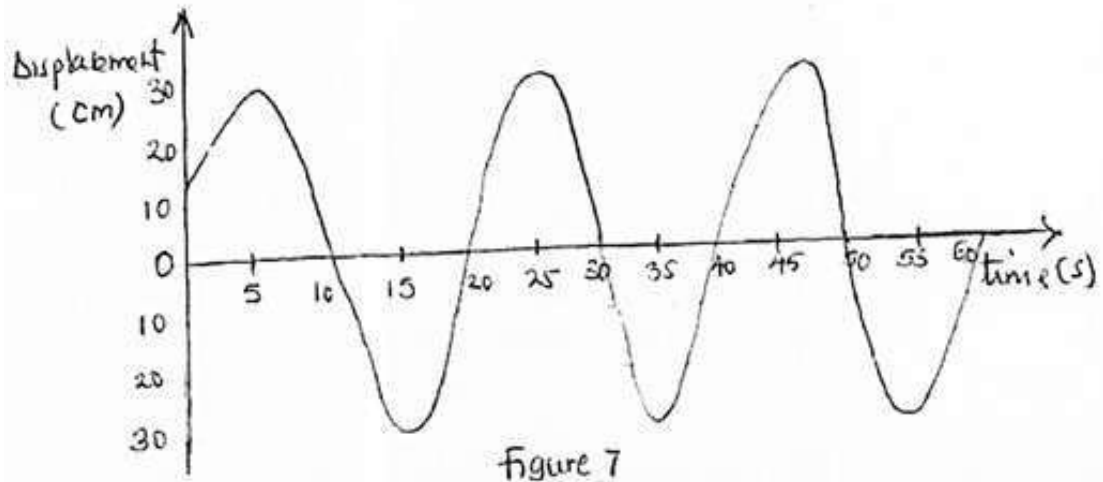
State with a reason which side is deeper.

.....  
 .....

**SECTION B (55 Marks)**

Answer all questions

14. a) Figure 7 shows a displacement - time graph for a progressive wave



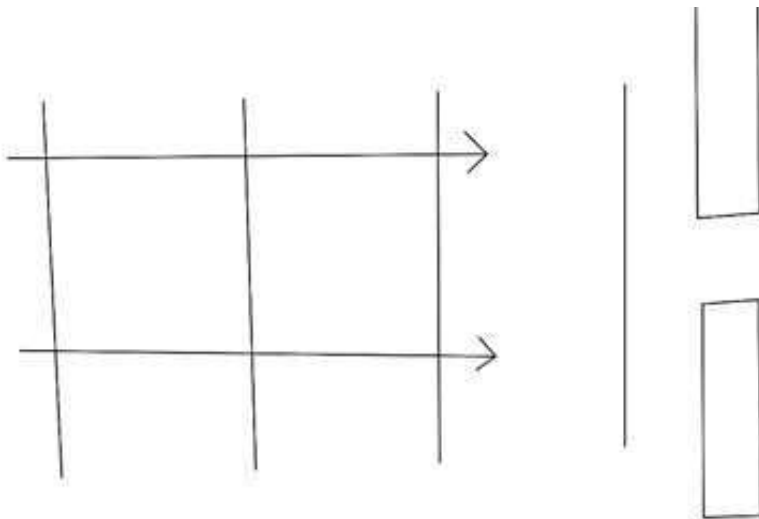
i) State the amplitude of the wave.

.....

ii) Determine the frequency of the wave

.....

iii) On the same figure, sketch a wave of half the amplitude and double the frequency.



**Figure 8**

b) Figure 8 shows plane waves incident to a slit.

i) Complete the diagram to show the pattern across the slit.

ii) State what will be observed on the waves across the slit when;

i. The slit is made very large

.....

ii. The slit is made very small

.....

.....

15. Figure 9 shows a ray of monochromatic light incident to a transparent rectangular bloc

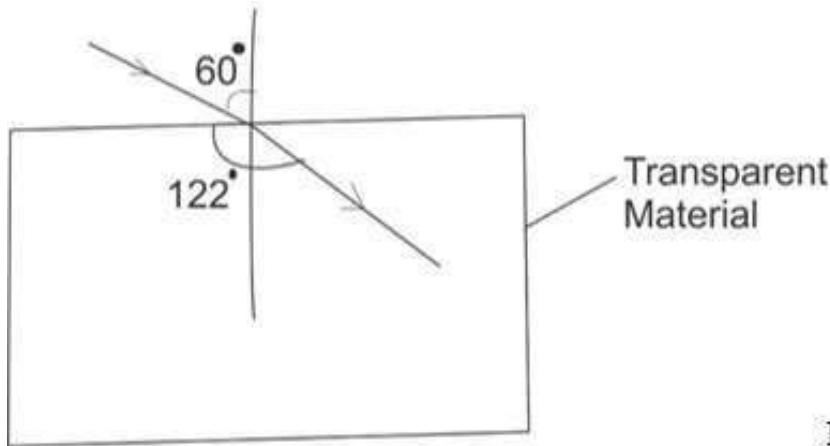


Figure 9

Determine

i) The angle of refraction

.....

.....

ii) The refractive index of the transparent material.

.....

iii) The critical angle of the transparent material.

.....

b) On the same diagram, draw the direction of the ray until it emerges out of the block.

c) What do you understand by the term monochromatic light?

