FOCUS A365

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FORM 3 TERM 1 PHYSICS PP2 EXAMINATIONS 2018

NAME:_____**ADM NO:**_____ **CLASS:** _____

INSTRUCTIONS TO THE CANDIDATE:

(a) Write your **name** and **index number** in the spaces provided above.
(b) **Sign** and write the **date** of examination in the spaces provided above.
(c) This paper consists of **two** Sections **A** and **B**.
(d) Answer **all** the questions in sections **A** and **B** in the spaces provided.
(e) All working **must** be clearly shown in the spaces provided.
(f) Non-programmable silent electronic calculators and KNEC Mathematical tables **may be** used
(g) Candidates should answer the questions in English
(h) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

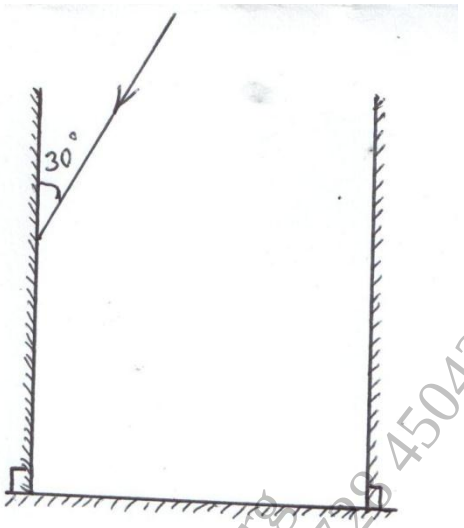
FOR EXAMINER'S USE ONLY:

Section	Question	Maximum Score	Candidate's Score
A	1 – 12	25	
B	13	10	
	14	14	
	15	11	
	16	11	
	17	9	
Total Score		80	

SECTION A (25MKS)

Answer all questions in this section.

1. The figure below shows three mirrors arranged at right angles to each other. A ray of light is incident on one of the mirrors.



Complete the diagram to show the path of the ray after reflection on each of the mirrors (3mks)

2. State one use of echoes (1mk)

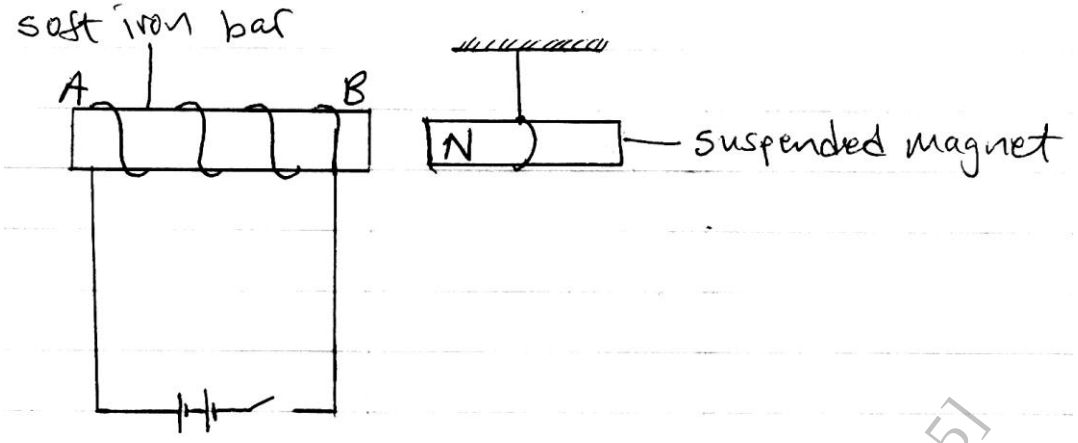
3. State what is meant by polarization in simple cells (1mk)

4. State two advantages of using convex mirrors to monitor movements in a large supermarket (2mks)

5. In a laboratory there are four metals – tin, nickel, copper and cobalt. Of these metals, name the metals that are
   a) Magnetic (1mk)

   b) Non-magnetic (1mk)

6. The figure below shows a soft iron bar AB placed in a coil near a freely suspended magnet.



Explain the observation made when the switch is closed (2mks)

7. A ship in an ocean sends out an ultra sound whose echo is received after 3 seconds. If the wavelength of the ultra sound in water is 7.5cm, and the frequency of the transmitter is 20kHz. Determine the depth of the ocean (3mks)

8. It is observed that when a charged body is brought near the cap of a positively charged electroscope, the divergence of the leaf increases. State the type of charge on the body (1mk)

9. Glycerine has a refractive index of 1.47. A coin at the bottom of a beaker containing glycerine appears to be 6.8cm below the surface of glycerine. Determine the height of the column of glycerine in the beaker. (3mks)

10. State two factors that affect the speed of sound in air (2mks)

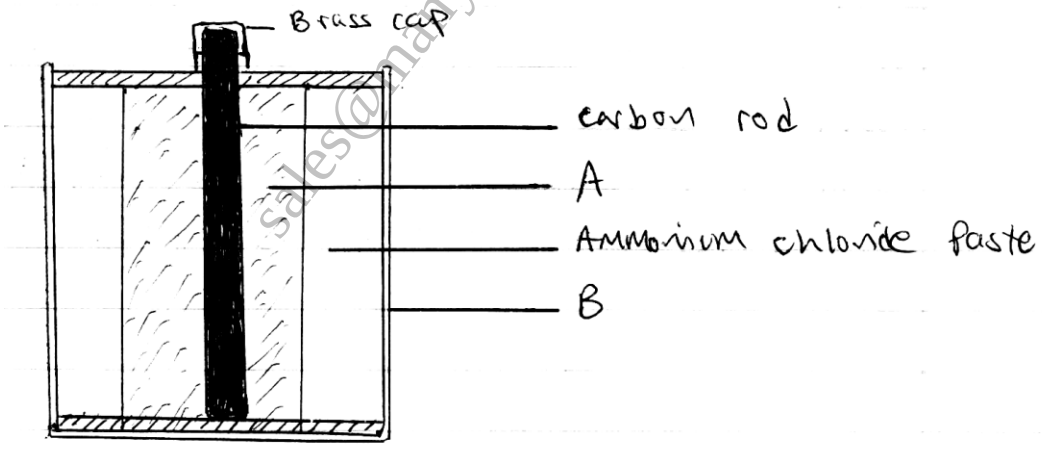
11. Explain why repulsion is the only sure test for a magnet (2mks)

12. The angle between a plane mirror and an incident ray is 70^o. The mirror is rotated clockwise by 20^o. Determine:
    a) The new angle of incident (2mks)

    b) The angle by which the reflected ray is rotated (1mk)

SECTION B (55MKS)

13. The figure below shows the cross-section of a dry cell.



    a) On the same diagram indicate the polarities of the cell (2mks)
    b) Name the parts labeled A and B (2mks)
    A –

B –

c) State the use of the part labeled A (1mk)

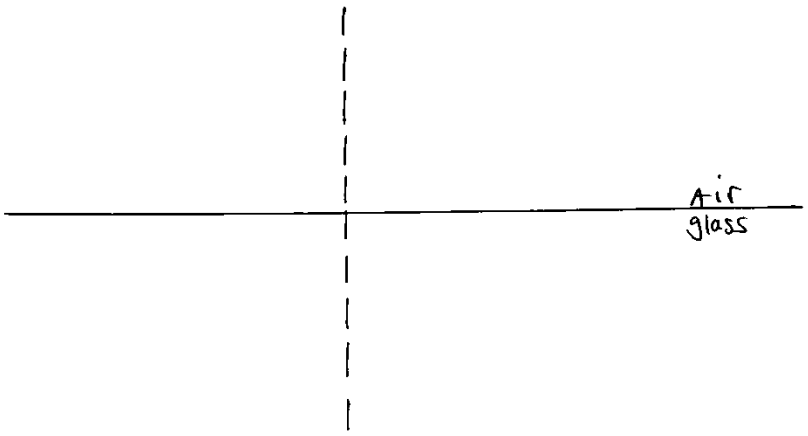
d) i) What is meant by local action in a simple cell? (1mk)

ii) How is local action minimized in a simple cell? (1mk)

e) State two advantages of an alkaline cell compared to a lead-acid cell (2mks)

f) Why are bulbs joined in series less brighter compared to the same number of bulbs connected in parallel? (1mk)

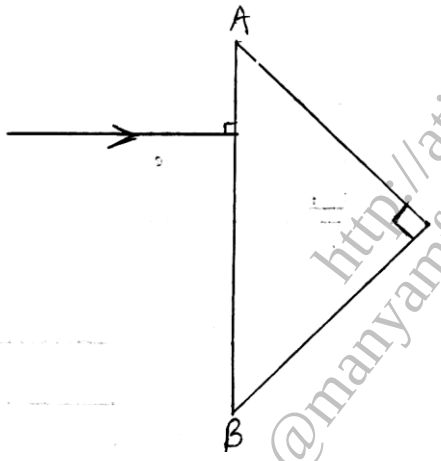
14. a) The figure below shows interface between glass and air



Draw on the figure a ray diagram to illustrate the critical angle (3mks)

c) Name two conditions necessary for total internal reflection to occur (2mks)

d) The figure below shows a ray of light incident at right angles to face AB of a right angled glass prism of refractive index 1.62.



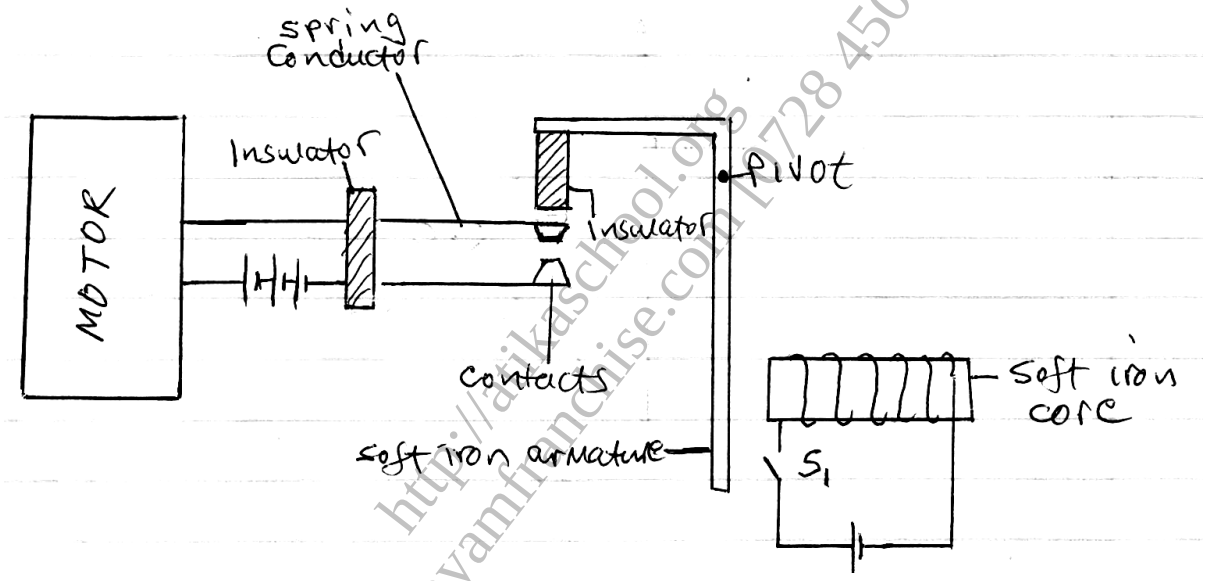
i) Complete the diagram to show the path of light until it leaves the prism (2mks)

ii) Determine the critical angle of the material (3mks)

e) State any two application of prisms (2mks)

f) State any two applications of optical fibres (2mks)

15. The figure below shows a motor connected to a magnetic switch called a relay operated by an ordinary switch S_1.



a) Explain how the relay switches on the motor when S_1 is closed. (3mks)

b) State with a reason the effect on the motor, if the iron core is replaced with steel core and switch S_1 is put on and then off. (2mks)

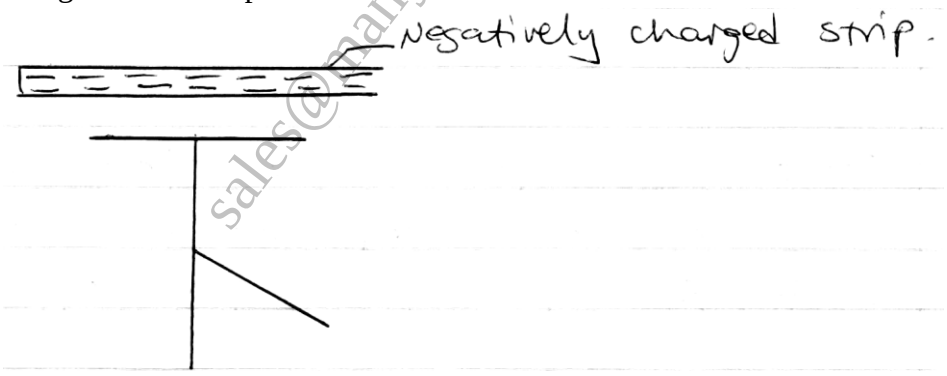
c) Other than a magnetic relay, state two other uses of an electromagnet (2mks)

d) State two ways of increasing the strength of an electromagnet (2mks)

e) Explain why iron is referred to as magnetically soft whereas steel is referred to as magnetically hard? (2mks)

16. a) State two uses of a charged electroscope (2mks)

b) The figure below shows an electroscope in a diverged state after a negatively charged strip is brought near the cap



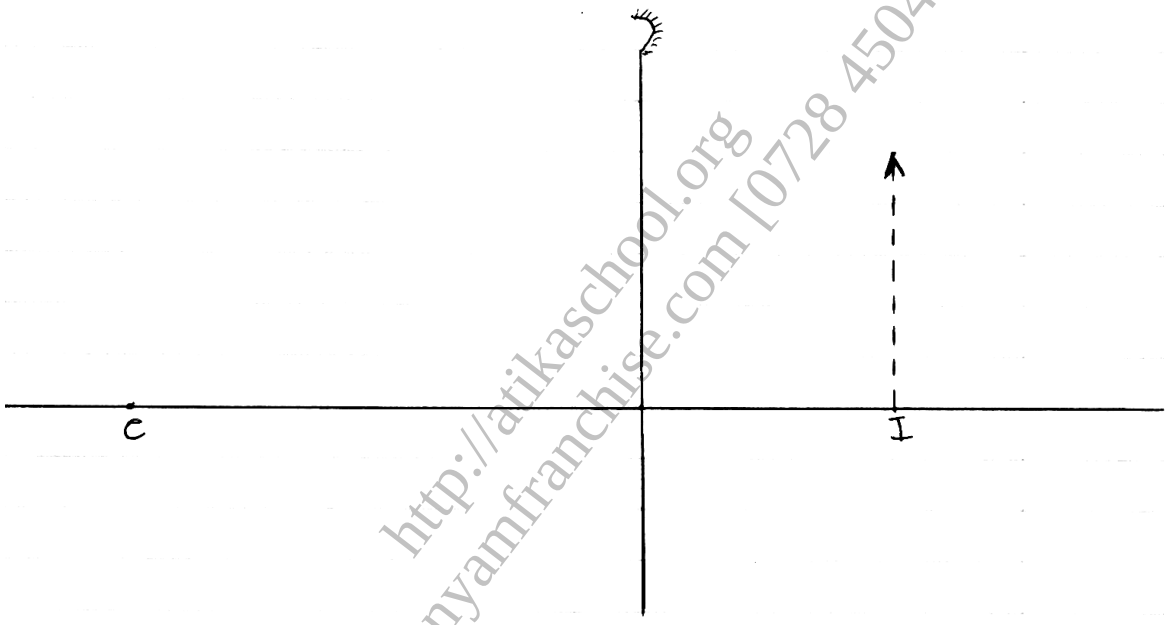
i) On the same diagram, show the distribution of charges on the electroscope (2mks)

ii) Explain how the leaf divergence is caused (2mks)

iii) If the cap is earthed, what would be the effect on leaf divergence and explain why? (2mks)

c) The current flowing through a point in a circuit is 1.5A. How long would a charge of 600C flow through the point? (3mks)

17. The figure below shows an image formed 40cm behind a concave mirror whose radius of curvature is 80cm



a) On the same figure, draw a ray diagram to show the position of the object (3mks)

b) Use the ray diagram to determine:

i) The object distance (1mk)

ii) The magnification (3mks)

c) Draw a diagram to show the appearance of the sun during the annular eclipse (2mks)