

GURU'S END OF TERM II JOINT EVALUATION

Kenya Certificate of Secondary Education (KCSE)

- PHYSICS -

FORM TWO

MARCH 2021 - 2 hours

NAME:

ADM NO.....

Candidate's SignatureDate

INSTRUCTIONS TO CANDIDATES

Write your name in the spaces provided at the top of this page.

Write your admission, date and sign on the spaces provided above

This paper consists of two sections: Section I and Section II.

Answer **ALL** questions from section I and II

All answers and workings must be written on the question paper in the spaces provided below each question.

Show all the steps in your calculation, giving your answer at each stage in the spaces below each question.

Non – Programmable silent electronic calculators and KNEC mathematical tables may be used, except where stated otherwise.

FOR EXAMINERS USE ONLY

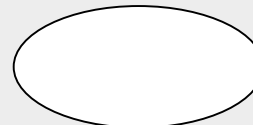
SECTION I

QUESTIONS	TOTAL
1 -14	

SECTION II

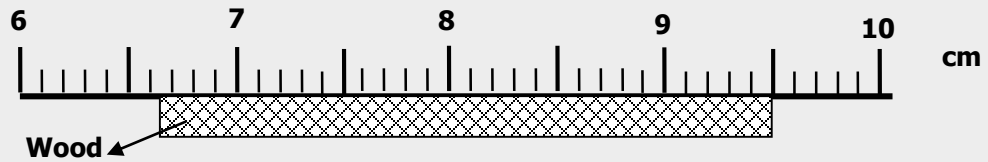
15	16	17	18	19	TOTAL

GRAND TOTAL



Section I (25 marks)

- 1.** The figure below shows a section of a metre rule used to measure length of a piece of wood.



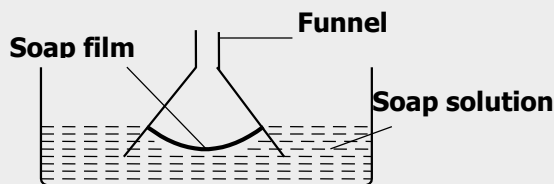
Find the length of the wood (2mks)

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- 2.** The initial level of water in a burette was **26cm³**. Some **10** drops of water each of volume **0.5cm³** are allowed to **drop out**. Find its final reading. (2mks)

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- 3.** Figure shows a funnel dipped into a liquid soap solution.



State and explain what happens to the soap bubble when the funnel is removed. (2mks)

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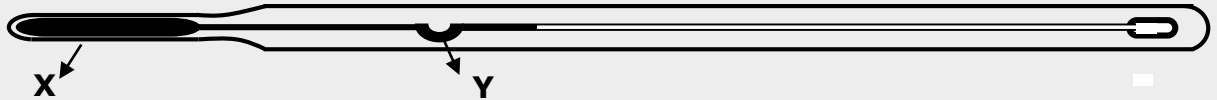
4. Name **two** properties of a suitable hydraulic fluid (2mks)

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5. A drop of blue ink is introduced at the bottom of a beaker containing water. It is observed that after some time all the water in the beaker turn blue. Name the process that takes place. (1mk)

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6. The Figure below shows a clinical thermometer which is not graduated.



(i) Name the parts indicated with letters: **X** and **Y**. (2mk)

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(ii) What is the function of the part labelled **Y**. (1mk)

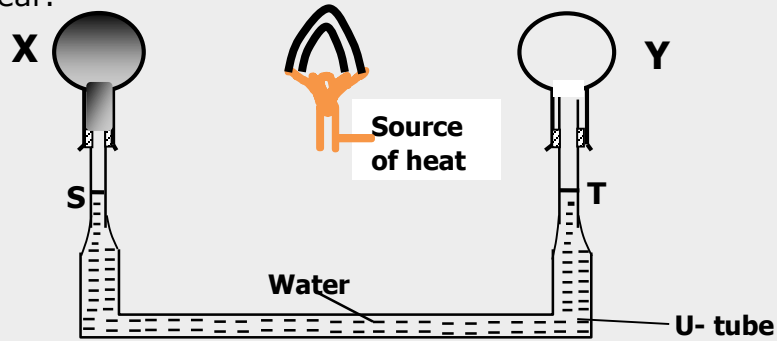
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(iii) State the appropriate scale range in degrees Celsius of the thermometer.

(1mk)

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7. The figure below shows a source of heat placed at equal distances from two identical flasks X and Y containing air. The surface of X is painted black while Y is clear.



X and Y are linked by a U-tube filled with water whose level S and T are initially the same. State and explain the observation made after heating. (2mks)

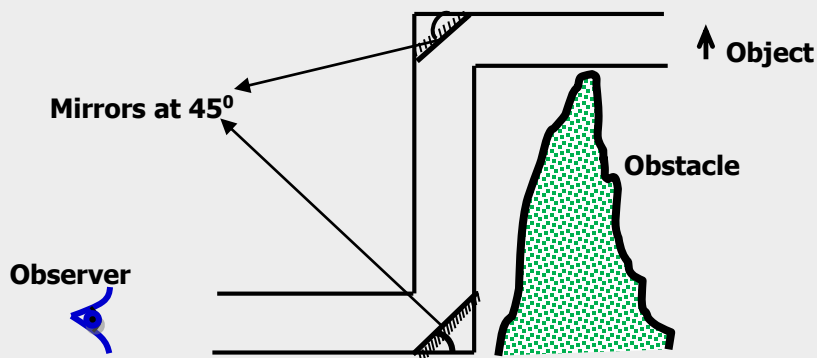
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8. **What** is the name of the apparatus shown in the diagram below?



- (i) Name of instrument..... (1mk)
- (ii) Complete the ray diagram to show to the final image position (1mk)

9. State the law of electrostatic charge. (1mk)

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10. Why is it safer to carry explosive fuels in metal cans instead of plastic can? (1mk)

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11. State the use of manganese (IV) oxide in a dry cell (1mk)

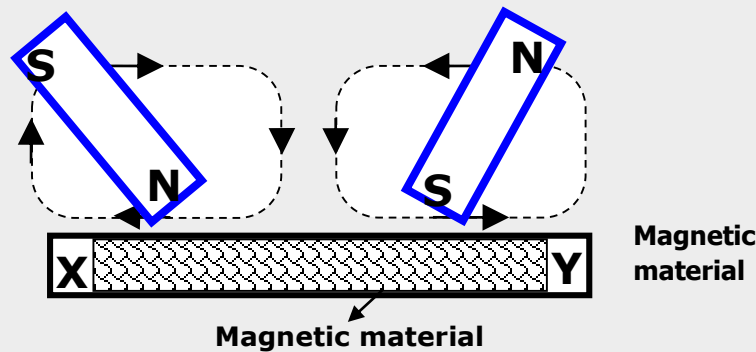
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12. Calculate the amount of current flowing through a bulb if **720C** of charges flow through it in **200** seconds. (2mks)

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13. In an attempt to make a magnet, a student used the double stroke method as shown below.

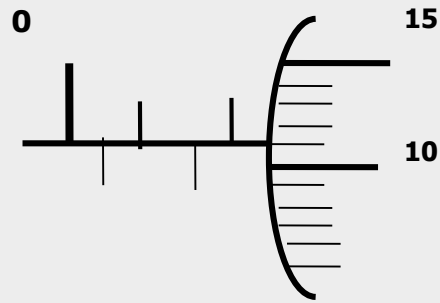


State the polarity at end X and Y. (2mk)

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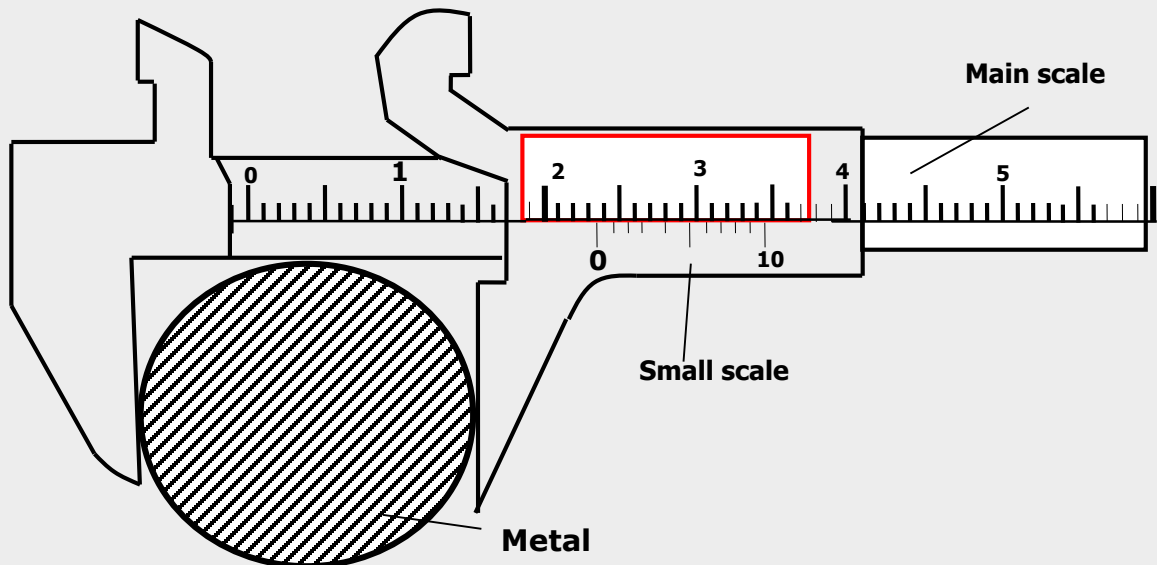
14. What is the micrometer screw gauge reading shown in the diagram below?



(1mk)

SECTION B (55MARKS)

15. The figure below shows a vernier caliper being used to measure the diameter of a cylindrical metal of mass **250g** and length **20cm**. The reading on the calipers when the jaws were fully closed without the metal was + **0.08cm**.



(a) What is the diameter of the cylindrical metal?

(2mks)

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(b) Calculate the volume of the cylindrical metal. **(3mks)**

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(c) Determine the density of the cylindrical metal. **(3mks)**

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(d) In an experiment to estimate the diameter of an oil molecule, an oil drop of diameter **0.05 cm** spread over a circular patch whose diameter is **20cm**

Determine:

(i) The volume of the oil drop. **(2mks)**

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(ii) The area of the patch covered by the oil **(2mks)**

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(iii) The diameter of the patch covered by the oil. (2mks)

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(v) State **two** possible sources or errors in this experiment. (2mks)

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16. (a) State the principle of moments. (1mk)

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(b) Define the term moment of a force. (1mk)

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(c) Name **two** activities which produce a turning effect (2mks)

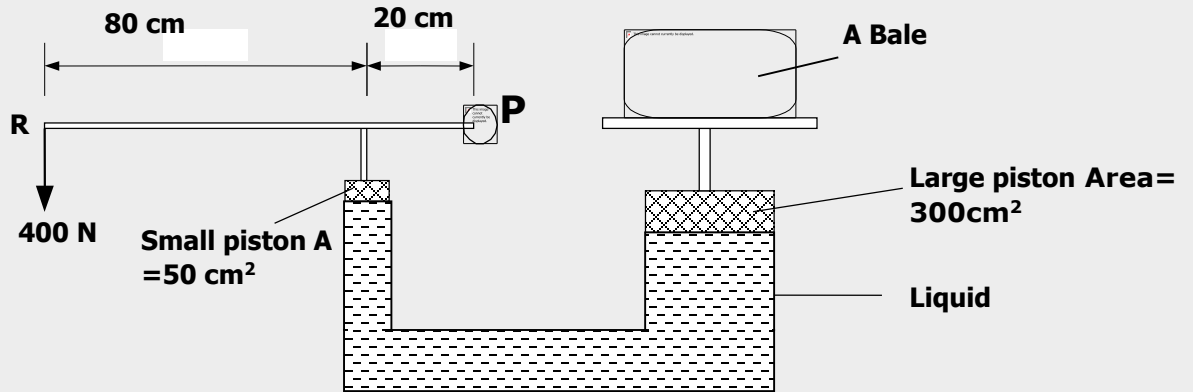
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(d) Why is it very difficult to open a door from a point too close to hinges?
(1mk)

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(e) Figure shows a hydraulic press system using a lever of negligible mass on the side of a small piston pivoted at point **P**. A force of **400N** is applied at **R**.



(i) Calculate the force **F** exerted by small piston on the liquid due to the lever.
(3mks)

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(ii) Find the weight of the Bale supported by the large piston.
(3mks)

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(iii) State **two** properties of the liquid used as the brake fluid (2mks)

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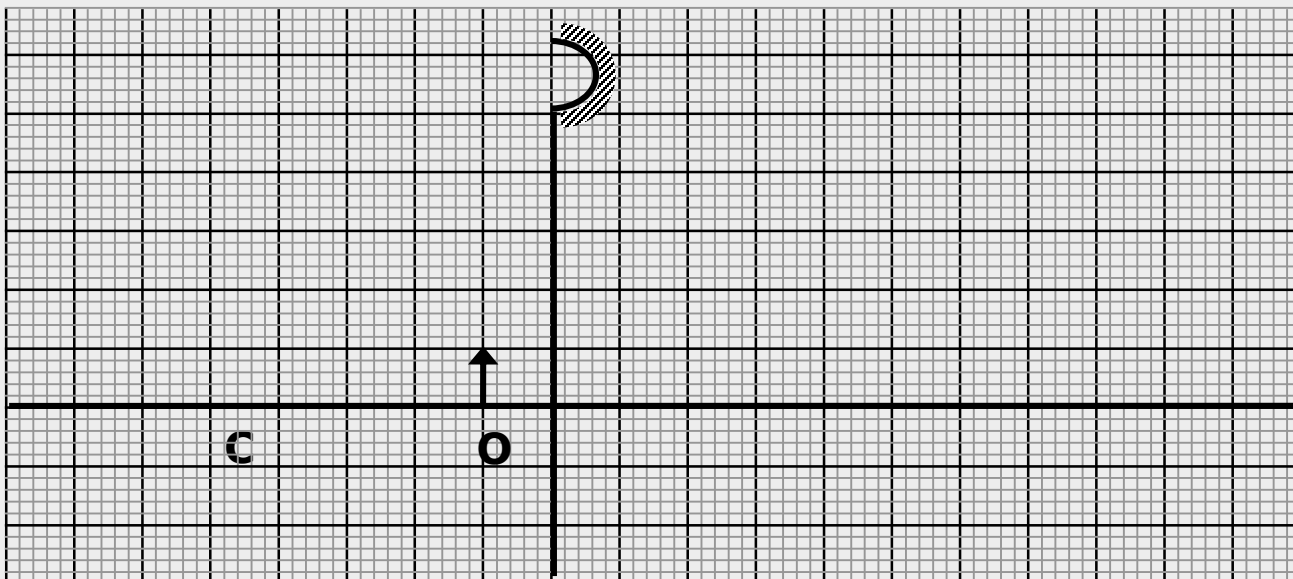
17. (a) Define the following terms as used in curved mirrors.
i) Principal focus (F). (1mk)

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ii) Focal length (f) (1mk)

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(b) The figure below shows an object placed 10cm in front of a concave mirror whose radius of curvature is 40cm.



(i) On the same figure, draw a ray diagram to show the position of the image formed. (3mks)

(ii) Use the ray diagram to determine

I) The image distance (1mk)

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II) The magnification (2mks)

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iii) State where the position of the image would be if the object had been placed at the principal focus (1mk)

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18. (a) Distinguish between soft and hard magnetic materials. (1mk)

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(b) Given a bar magnet, a steel bar and a string describe a simple experiment to distinguish between the magnet and the steel bar. (4mks)

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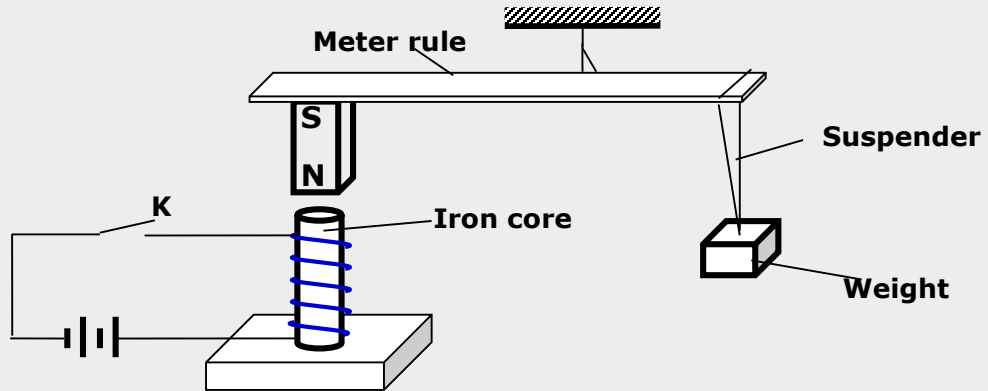
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- (c) Give a reason why attraction in magnetism is not regarded as a reliable method of testing for polarity. (1mk)

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- (d) In the set up, the suspended metre rule is in equilibrium balanced by the magnet and the weight shown. The iron core is fixed to the bench.



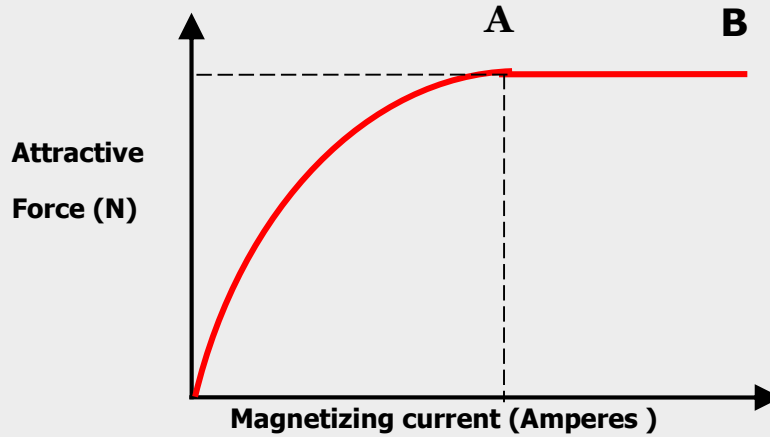
- (i) State and explain the effect on the metre rule when the switch K is closed (3mk)

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- (ii) What would be the effect of reversing the battery terminals? (1mk)

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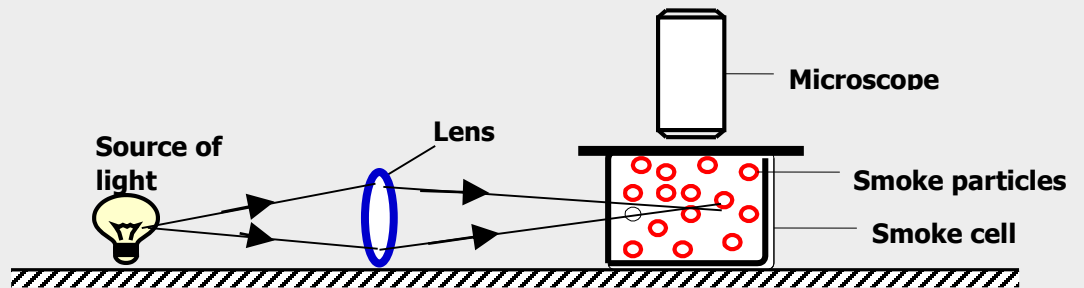
- (e) The graph in the figure shows the relationship between the attractive forces of an electromagnetic and the magnetizing current. Give reasons for the shape of the curve in terms of the domain theory. (2mks)



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19. Brownian motion of smoke particles can be studied by using the apparatus shown below. To observe the motion, some smoke is enclosed in the smoke cell and then observed through the microscope.



- (a) State and explain the observation made. (2mk)

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(b) State what will be observed if the temperature surrounding the smoke cell is increased. (1mk)

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(c) What is the function of the following in the experiment above.

(i) Microscope (1mk)

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(ii) The Lens (1mk)

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