NAME.....CLASS.....ADM/NO.....C/NO.....

NYABURURU GIRLS' NATIONAL SCHOOL

OUR LADY OF LOURDES

Date done	
Invigilator	
Date returned	
Date revised	

FORM 2 PHYSICS
CAT 2 TERM 1 2016
TIME: 2 HOURS

Instructions:

- Write your name, class and class number in the spaces provided above.
- This paper consists of two sections: Section A and B.
- Answer **all** questions in sections A and B in the spaces provided.
- All working must be clearly shown on the spaces provided.
- This paper has 9 printed pages.

SECTION A (25MARKS)

1. Define the term force and state its SI unit. (2mks)

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2. Give two advantages of frictional force. (2mks)

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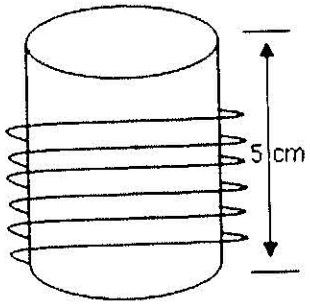
3. The figure below shows a cylindrical object of uniform cross section and height 5cm. A thread is wound on it five times.



Given that the thread is 132cm, find the radius. (3mks)

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4. Name two defects of a simple cell and suggest how to minimize each of them. (4mks)

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5. Complete the table below for a rod brought near an electroscope and the effect on the leaf. (3mks)

Charge on electroscope	**Charge on rod**	**Effect on leaf**
Neutral	Positive	Leaf diverges
Neutral	Negative	
Positive		Divergence increases
Negative		Divergence decrease

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6. Explain why a needle dropped on water sinks and yet if it is placed gently. it floats. (2mks)

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7. State the law of electrostatic charges. (1mk)

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8. Give a reason why concrete beam reinforced with steel does not crack when subjected to changes in temperature. (1mk)

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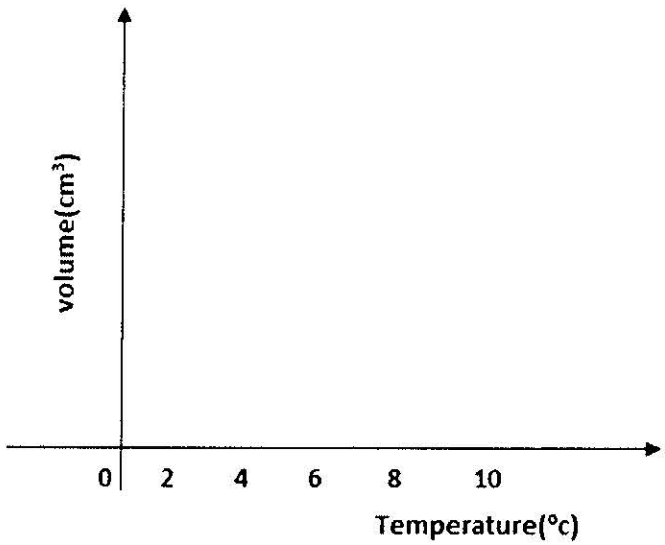
9. Equal volumes of water and paraffin at $0^{o}C$ are subjected to heat up to $10^{o}C$. On the same axes below, sketch their volumes against temperature. (2mks)



10. State the kinetic theory of matter. (1mk)

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11. 1 800 cm^3 of fresh water of density 1 000kgm^{-3} is mixed with 2 200 cm^3 of sea water of density 1 025 kgm^{-3}. Calculate the density of the mixture. (3mks)

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12. Define a vector quantity. (1mk)

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SECTION B (55MARKS)

13. (a) Define current and state its S.I. units (2mks)

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(b) Distinguish between primary and secondary cell. (2mks)

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(b) State one advantage and two disadvantages of a lead acid accumulator over the alkaline accumulators. (1mk)

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(c) A charge of 180 coulombs flows through a lamp every minute. Calculate the current flowing through the lamp. (3mks)

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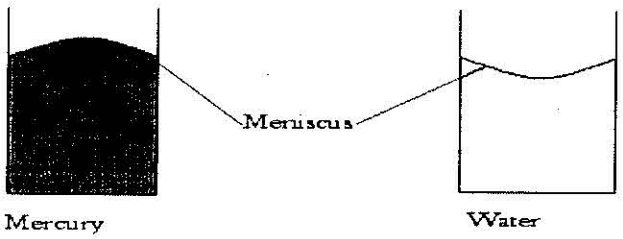
14. (a) Explain briefly the nature of the manicures of mercury and water in the glass tubes below. (2marks)



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(b) Give two differences between mass and weight. (2mks)

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(c) Determine the density in kg/m^3 of a solid whose mass is 400g and whose dimensions are 30cm x 40cm x 30cm. (3mks)

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(d) The mass of an object on earth is 50kg. If its weight is 1000N in a certain planet, calculate the gravitational field strength of the planet. (3mks)

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15. (a) State two factors that affect pressure in liquids. (2mks)

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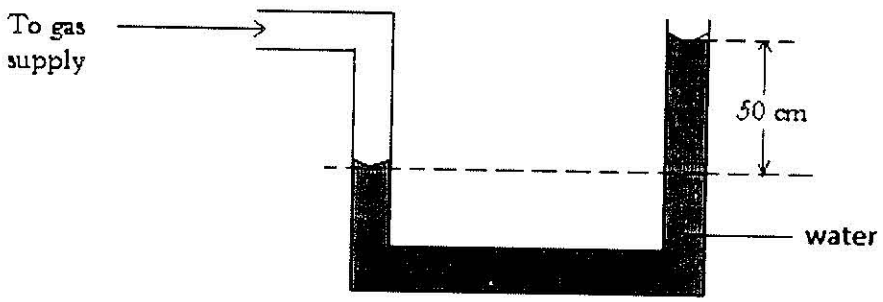
(b) The figure below shows a u-tube manometer used to measure lung pressure



Determine the lung pressure given that the atmospheric pressure is 100000 N/m^2 and the density of water is $1000kg/m^3$. (Take g = 10N/kg). (3mks)

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(c) A block of copper of density $10g/cm^3$ measures 5cm x 3cm x 2cm. Given that the force of gravity is 10N/kg, determine:

(i) The weight of the block. (3mks)

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(ii) The maximum pressure (2mks)

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(iii) The minimum pressure (2mks)

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16. (a) A girl stands 3.0m in front of a plane mirror.

(i) Calculate the distance between the girl and her image. (2mks)

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(ii) If the mirror is moved 0.6m closer to the girl, what will be the distance between her and the image? (2mks)

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(b) State three characteristics of images formed by plane mirrors. (3mks)

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(c) Two plane mirrors are inclined at an angle of 60^{o}, find the number of images formed. (2mks)

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17. (a) Liquids expand more than solid when heated. Explain. (2mks)

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(b) By which method does heat travel through:

(i) Water? (1mk)

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(ii) Vacuum? (1mk)

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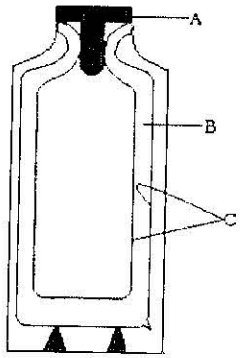
(c) The figure below shows a section of a vacuum flask.



(i) Name the parts labeled A, B and C. (3mks)

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18. (a) Give three reasons why water is not used as a thermometric liquid. (3mks)

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(b) Two thin blankets are warmer than a single thick one. Explain. (2mks)

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(c) State the function of constriction in a clinical thermometer. (2mks)

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(d) Why does the doctor shake the clinical thermometer before taking readings from the patient? (1mk)

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