

FORM TWO PHYSICS
END TERM EXAMINATIONS
MARCH/APRIL 2016
TIME: 2 HOURS

NAME.....ADM.NO:.....

SCHOOL.....

INSTRUCTIONS TO CANDIDATES:

- Write your name, admission number, date of examination and the name of your school in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- This paper consists of sections: A and B.
- Answer **all** the questions in section A and B in the spaces provided.
- All working **must** be clearly shown in the spaces provided.
- Mathematical tables and electronic calculators may be used.

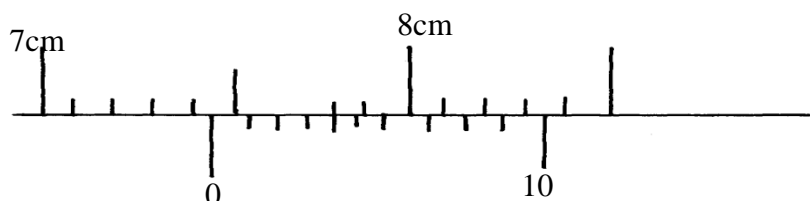
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SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 12	25	
B	13	13	
	14	12	
	15	16	
	16	14	
TOTAL SCORE		80	

SECTION A (25 MARKS)

Answer **all** question this section

1. Distinguish between mass and weight of a body stating the S.I units for each. (2mks)
2. The figure below shows part of scale of vernier calipers.



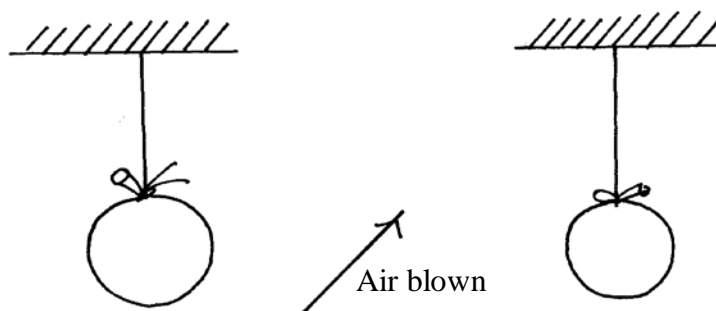
What is the reading indicated on the scale (1mk)

3. 180cm^3 of fresh water of density 100kg/m^3 is mixed with 2200cm^3 of sea water of density 1025kg/m^3 . Calculate the density of the mixture (4mks)

4. Explain why fish can survive under water when the surface is already frozen (2mks)

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5. Two inflated balloons are at the same level while suspended from threads a short distance apart as shown below;



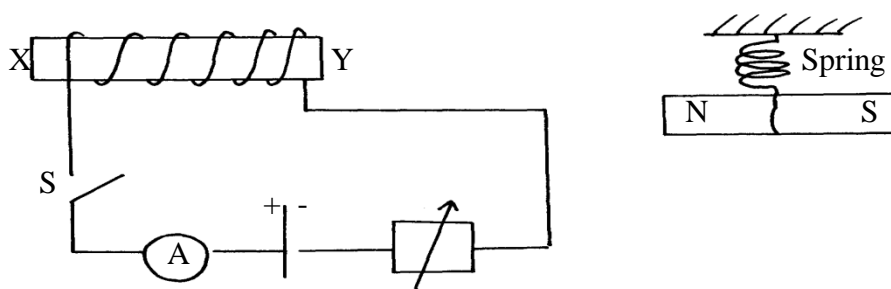
Some air is blown gently in the space between the balloons in horizontal direction. Explain what happens to the balloons. (2mks)

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6. State **one** advantage of an alkaline battery over a lead acid battery. (1mk)

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7. The diagram below shows a permanent magnet suspended by a spring. State with reason the behaviour of the magnet when the switch is closed. (2mks)



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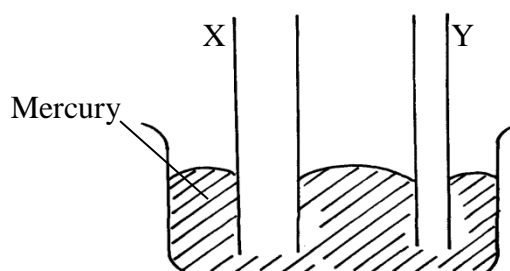
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8. Convection and diffusion both involve motion of fluids. Distinguish between the two. (2mks)
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A negatively, charged rod is brought close to (but not touching) an uncharged sphere. If the sphere is momentarily earthed and then the rod is removed, briefly explain what happens. (2mks)

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9. Indicate on the diagram below, the level of mercury in the tubes **X** and **Y** (2mks)



10. An object weighs 1200N on a certain planet. What is the gravitational field strength of this planet if the object is 60kg? (3mks)

11. State **two** properties of a thermometric liquid. (2mks)
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SECTION B (55MARKS)

Answer all question this section

12.

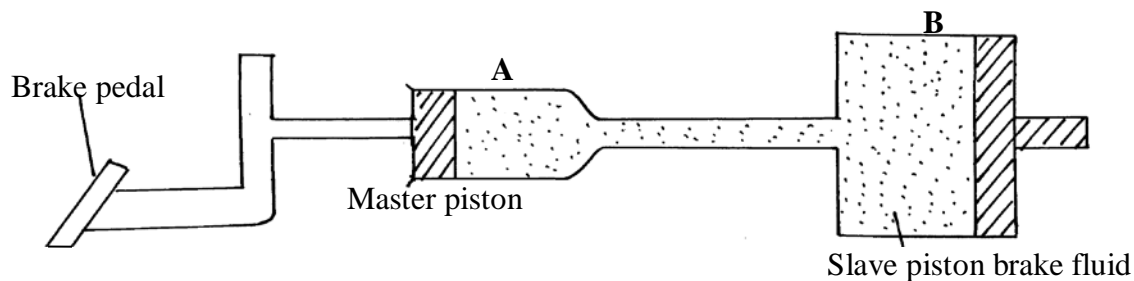
- a) Define **pressure** and give its S.I nits.

(2mks)

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- b) The diagram below represents a motor car hydraulic braking system;



- i. State **two** properties of the liquid used as a brake fluid (2mks)

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- ii. Given that in the diagram (b) above the master piston has an area of 15cm^2 and the slave piston has an area of 50cm^2 a force of 100N is applied on the master piston. Find the force used to stop the car. (3mks)

- c) Compare the values of pressure in the two pistons above and give a reason for your answer. (2mks)

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- d) Give a reason why gas is not suitable for use in place of the brake fluid. (1mk)

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- e) $X\text{cm}^3$ of substance A which has density of 800kg/m^3 is mixed with 100cm^3 of water with a density of 1000kg/m^3 . The density of the mixture is 960kg/m^3 . Determine the value of X (3mks)

13.

- a) Give reasons why it is necessary to leave the caps of the cells open when charging an accumulator (1mk)

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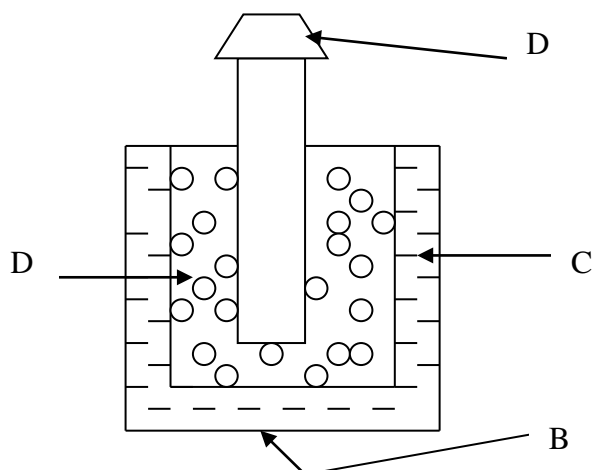
b) Define current and state its SI unit (2mks)

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c) A charge of 120 coulombs flow through a 1 am every minute. Calculate the current flowing through the lamp. (3mks)

d) What do you understand by open and closed circuits. (2mks)



i. State the polarities of A and B. (2 mks)

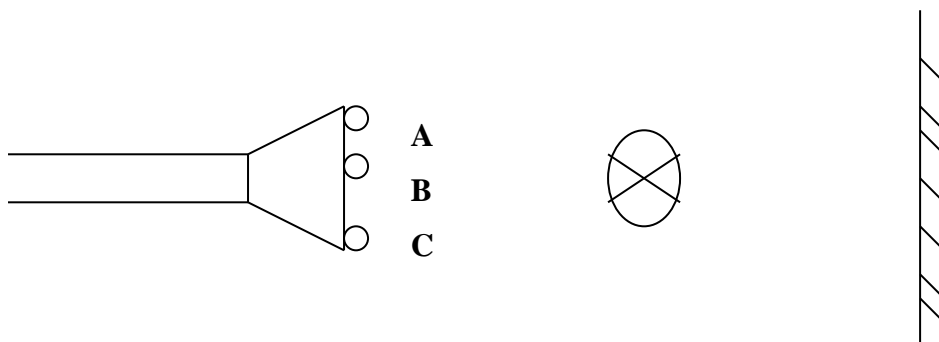
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ii. Name the chemical substances in the parts labeled C and D (2mks)

14.

- a) The figure shows an arrangement of source of light, an opaque object and a screen. Using A, B and C as point sources, sketch on the same diagram labeled a ray diagram to show what is observed on the screen. (3mks)



- b) In a certain pinhole camera, the screen is 10cm from the pinhole. When the pinhole is placed 6cm away from a tree, a sharp image of a tree 16cm high is formed on the screen. Find the height of the tree. (3mks)

- c) Distinguish between Lunar and Solar eclipse by stating the events that lead to the formation of each (4mks)

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- d) A girl stands 4 m in front of a plane mirror

- i. What is the distance between the girl and the mirror (3mks)

- ii. Explain how you would use an electroscope to distinguish between a conductor and an insulator (3mks)

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15.

a) Fill in the table of charges appropriately

(5mks)

Charge on Electroscope	Charge brought near cap	Effects on leaf divergence
+	+	
-	-	
+ or -	Uncharged body	

b) What is the name given to the method of charging an electroscope where it requires an opposite charge to the one of the charging materials?

(1mk)

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c) Distinguish between a basic physical quantity and a derived physical quantity giving an example of each.

(3mks)

Physical quantity	Derived physical quantity

d) State any **two** ways by which frictional force between two surfaces can be reduced.

(1mk)

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e) Explain why large mercury drops form oral ball on a glass slide

(2mks)

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- f) Explain why a man using a parachute falls through air slowly while a stone falls through air very fast. (2mks)

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