HOLASECONDARYSCHOOL

Mid-Term Examinations- February 2017

**PHYSICS FORM ONE**

**TIME: 1 ½ HOURS**

**Name ……………………………..………...…………. Adm. No …………………**

**Class ………………………………………………... Date ………………..........**

***INSTRUCTIONS:***

* Write your name, class and admission number in spaces provided above*

* Answer* ***ALL*** *the questions in the spaces provided*

* Mathematical tables and electronic calculators may be used*

* All working must be clearly shown where necessary.*

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1. The initial level of water in a burette was 20.3 cm3. 20 drops each of volume 0.02 cm3 were let out into a beaker placed below the burette. Determine the final level of water. (2 marks)

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1. An object is thrown vertically upwards. Name two forces that acts on the object. (2 marks)

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1. Give two factors that lower the surface tension of water. (2 marks)

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1. Explain why in a vacuum flask the walls enclosing the vacuum are silvered on the inside.

 (2 marks)

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1. State two disadvantages of anomalous expansion of water. (2 marks)

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1. A building standing 100m from a pinhole camera produces on the screen of the camera an image 5 cm high 10 cm behind the pinhole. Determine the actual height of the building. ( 3 marks)

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1. Two identical spheres A and B each standing on an insulated base are in contact. A negatively charged rod is brought near sphere A as shown below

A

B

 In what way will **A** differ from **B** if separated while the rod is near? (2 marks)

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1. A glass rod can be charged positively by rubbing it with silk. Explain what happens when the glass rod is being charged. (2 marks)

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1. Explain how you can charge an electroscope positively by the method of induction. (3 marks)

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1. a) Define the term electric current (1 mark)

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b) Calculate the quantity of charge that passes in a circuit for 3 minutes when a current of 2A is flowing. (2 marks)

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1. Give two reasons why domestic light bulbs are connected in parallel. (2 marks)

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1. A block measuring 20cm x 10cm x 5cm rests on a flat surface. The block has a weight of 30N. Determine the maximum pressure it exerts on the surface. (3 marks)

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1. Explain why feet feel colder in the morning when a person stands on a cemented floor than when a wooden floor. (2 marks)

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1. What is Brownian motion? (1 mark)

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1. What property of light is suggested by the formation of shadows? (1 mark)

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1. Differentiate between the images formed by plane mirrors and that formed by a pinhole camera.

 (2 marks)

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1. State and explain the effect of enlarging the size of hole in a pinhole camera on the image formed.

 (2 marks)

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1. An object O is placed in front of a plane mirror M. Locate the image formed as viewed by the observer’s eye. (2 marks)



1. a) Define the term pressure. (1 mark)

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b) A boy standing upright exerts a pressure of 13600 Pa on the floor. Given that the total area of contact of shoes and floor is 0.0368m2, determine the pressure he would exert on the floor if he stood on one foot. (3 marks)

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1. State two factors that affect pressure in liquids. (2 marks)

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1. A force of 10 N is applied on the small piston of a hydraulic lift of cross-sectional area 0.01 m2 in order to compress a cotton bale placed on a large piston of area 10 m2. Determine the force produced to compress the bale. (3 marks)

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1. What is diffusion? (1 mark)

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1. Give a reason why when determining the upper fixed point of a thermometer scale, steam and not water is used. (1 mark)

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