**Name:** ………………………………………………..………… **Adm No**: ….…………**Class:** ………… **Candidate’s Sign**: ………...............**Date:** ………………………………............................................

**OPENER EXAMS**

**TERM 3 2023**

**FORM TWO PHYSICS**

1. State safety laboratory rules under the following categories: -

 a) Safely on fire (1 mark)

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 b) Safety on electricity (1 mark)

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 c) Personal health (1 mark)

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2. Mechanics is a branch of physics. What does it deal with? (1 mark)

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3. a) Define the term density. (1 mark)

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 b) A wooden block of density 0.9 g/cm3 has mass of 50g. Determine its volume in cm3. (2 marks)

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4. Differentiate between scalar and vector quantities. (2 marks)

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 b) A metal weighs 40N, on the earth’s surface calculate its mass if (2 marks)

 (g = 10N /kg)

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5. a) State Pascal’s principle. (1 mark)

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 b) Figure below shows a simple mercury barometer.

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 i) Name region X (1 mark)

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ii) What keeps the mercury in the tube. (1 mark)

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iii) Find the value of the atmosphere pressure shown by the barometer in N/m2. Take density of mercury = 1.36 x 104 Kg/m3, g = 10N/kg. (2 marks)

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6. The figure below shows cotton wool socked in concentrated ammonia and concentrated hydrochloric acid placed at different sides of the tube.

cotton wool socked in concentrated ammonia solution

cotton wool socked in concentrated hydrochloric solution

Ammonia gas

HCl gas

 a) On the diagram show where the white precipitate will form after some time. (1 mark)

 b) What would happen to the rate of reaction, when the temperature is lower. (2 marks)

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c) Which process is tested in this case? (1 mark)

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7) a) Amongst liquids, gases and solids which one expands most, and least when heated in the same range of temperature? (1 mark)

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 b) Sketch a graph to show how the density of water varies with temperature when raised from 0oC to 4o C (2 marks)

Temperature (oC)

Density (g/cm3)

8. A student used the setup in the figure below to determine if water is a good conductor of heat.

i) Why is the ice wrapped with wire gauze? (1 mark)

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ii) Explain the reasons why heating is done at the top and not at the base. (2 marks)

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iii) State and explain what will be observed in the set up. (2 marks)

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9. a) State the laws of reflection. (2 marks)

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 b) State two characteristics of images formed by plant mirror. (2 marks)

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 c) How many images are formed when two plane mirrors are inclined at 360. (2 marks)

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10. a) State the two charges found in an atom. (2 marks)

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 b) Draw a well labeled diagram of gold leaf electroscope. (2 marks)

 c) State the laws of charge. (1 mark)

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11. a) What is a battery? (1 mark)

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b) Define current and state its S I unit (2 marks)

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 c) A cell drives a current such that 48 C of charge flows through a point in 2 minutes. Calculate the current in the circuit. (2 marks)

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12. a) State characteristics of magnetic field lines (2 marks)

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b) State the basic law of magnet. (1 mark)

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c) State one uses of magnets. (1 mark)

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d) Draw the magnetic field pattern in the figure below. (2 mark)

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e) State three methods of magnetization. (2 marks)

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13. a) Name the most appropriate instruments that can be used to measure the diameter of a thin wire. (1 mark)

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 b) Sketch a micrometer screw gauge scale showing a reading of 5.49 mm (3 marks)

 c) i) An oil drop of radius 0.35 cm formed a patch of radius 25cm when placed on water surface. Estimate the thickness (t) of the molecule. (2 marks)

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 ii) State two assumptions made in the experiment. (2 marks) ……………………………..………………………………………………………………………………

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