**PHYSICS**

**FORM 2**

**TIME: 1 HOUR.**

**NAME………………………………………………………………………**

**ADM NUMBER……………………………**

***Attempt ALL the questions in the spaces provided. (40 marks)***

**1.** The figure below shows a spherical ball held between the anvil and the spindle of a micrometer screw gauge.



 Determine the radius of the spherical ball. Give your answer in SI units. (2 marks)

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**2.** The figure below shows a brick of mass 8.0kg standing upright on the ground as shown.



 What is the pressure it exerts on the ground? (g = 10N/kg). (3 marks)

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**3.** State the reason why the magnetic field strength is greatest at the poles. (1mk)

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**4.** The figure below shows two mirrors M1 and M2 are inclined at right angles to each other.



Trace the reflection of the ray through the two mirrors and find the angle between the incident ray and reflected ray of mirror M2. (2mks).

**5.** A current of 0.5A flows in a circuit. Determine the quantity of charge that crosses a point in 4 minutes through the circuit. (2mks)

**6.** The vernier calipers in the figure below has a zero error of -0.05 cm. It is used to measure the diameter of an object and the reading was shown.



Determine the actual diameter of the object. (2 marks )

**7.** The mass of a density bottle when empty is 25g, 75g when filled with water and 65g when filled with alcohol. Calculate the density of alcohol. (2 marks )

**8.** An oil drop has a volume of 0.01 mm3 when placed on the surface of water, It spreads out to form a circular patch of area 500 cm2. Determine the thickness of the oil film. (2 marks )

**9.** The figure below shows how magnets are stored in pairs with keepers at the ends.



Explain how this method of storing helps in retaining magnetism longer. (2 marks)

**10.** Sketch a vernier calipers scale reading 3.41 cm. (1mark)

**11.** State two differences between images formed by a plane mirror and a pinhole camera. (2marks)

**12.** You are provided with connecting wires, 2 dry cells, a switch and two bulbs. Draw a circuit diagram to show; cells in parallel, bulbs in parallel and controlled by one switch. (2marks)

**13.** When an ebonite rod is rubbed using a dry cloth it acquires negative charge. Explain how the negative charge is acquired. (1mark)

**14.** The diagram below shows a soft Iron bar placed between poles of a magnet. Draw the magnetic field pattern produced. (2mks)



**15.** The diagram below shows a conductor in a magnetic field.



Indicate on the diagram the direction of motion. (1mark)

**16.** The figure below shows a simple cell.



(a) Identify solution A. (1 mark)

b) When switch K is closed, the bulb lights brightly initially, but grow dim and dimmer until it goes off;

(i) State the possible cause of this behavior. (1 mark)

(ii) State the remedy for the behavior. (1mark)

**17.** The diagram below shows a section of a micrometer screw gauge used to measure the diameter of a thin rod. If it has a zero error of – 0.02mm.determine the diameter of the rod measured (2mks)



**18.** What are ferromagnetic materials? (1mks)

**19.** a) Define electric current (1mks)

b) .The figure below shows an electric circuit with two bulbs S1 and S2 which are identical.



Explain what happens to the bulbs when

i. S1 only is closed (2mks)

Ii.S1 and S2 are closed (2mks)

**20.** In an experiment to estimate the diameter of an oil molecule, an oil drop of diameter 0.05cm spreads over a circular patch whose diameter is 20cm. Determine the diameter of the oil molecule. (3mks)