**Marking Scheme**

**Physics 232/2**

 **Paper 2**

**Section A (25 marks**)

1. The figure **below** shows an object O placed in front of a plane mirror.

Object

E

2 diverging rays 🗸¹

 Position of the image

1. i) The ammeter reading decreases✓

ii) The resistance of the metal increases with increase in temperature.✓

60

30

1. always upright

always smaller than oject / accept diminished

*reject: formed behind the mirror*

5. (a) State the basic law of magnetism. (1 mark)

 (a) *Unlike poles attract, like poles repel* 🗸*¹*

*(b) The keepers become magnetized thus neutralizing 🗸 the pole; this reduces*

repulsion at the poles 🗸 thus helping in retention of magnetism.

One cycle = a  a = 4 spaces

 each space = 0.7 = 0.1 second

 7

 T = 0.1 × 4 = 0.4 second ***1***



 ***1***

1. A current carrying conductor AB is in a magnetic field as shown in figure 1 below.

(a)

 (1mk)

1. - Direction of magnetic field. 🗸

Direction of the current (2mk)

1. (a) Distinguish between a transverse and a longitudinal wave. (1 mark)

|  |  |  |  |
| --- | --- | --- | --- |
|  | (a) | Transverse | Longitudinal wave |
|  | 1. | Displacement of particles in the wave is perpendicular to the direction of wave motion. | - Displacement of particles in the  wave is parallel to the direction  of wave motion. |
|  | 2. | Requires no medium for propagation. | - Requires a material medium for  propagation. |
|  | 3. | Can be mechanical or electromagnetic in nature. | - Purely mechanical wave. |

 Any 1 combination

 (b) 

 Hence 

1. a) Topping is adding distilled water in the lead acid accumulator so that the plates are submerged 

b) It has a higher e.m.f compared to nickel iron type. It is less expensive than nickel iron type ***any one ***

10. Charges concentrate***1*** on the sharp end of the pin resulting into net reduction of charges on the leaf making it collapse.

11

**Section B (55 Marks)**

12a) This is the ratio of sine of the angle of incidence to the sine of the angle of refraction.

 OR



b) for the graph check

scale I mk

line I mk

ploting 2 mks

axes 1 mk

 5 mks

 ii)

3 marks

c)

**13** a)current through conductor is directly proportional to the applied voltage provided temperature and other physical conditions are kept constant.



 b) i) Parallel resistance



 Parallel resistance

 Series resistance = 3.00

 Effective resistance

 = 2.73 + 1.33 + 3.00

 = 7.06 ***1*** ***3 marks***

****

******

c) i)



 ii)

 

 14. a) Leaf in A decreases in divergence

B increases in divergence electrons flow from B to A ***1***

 b) P is negatively charged ***1*** The body repels more negative charge from the cap to the leaf. ***1***

  c)

 d) Decreasing distance between plates.

 - Increase area of overlap of the plates

 - using a dielectric with a higher dielectric constant. ***(any two1*** ***1*** ***)***

 15.a) Diffraction ***1***

 b) l = 24 = 8cm

 3

 v = f

 = 50 × 8/100 ***1***

 = 4 m/s ***1***

c) The speed will be lower because of low temperature ***1***

 d) i) V = n × 2d

 = 20 × 2 × 80

 9.5

 = 336.8 m/s

 ii) The time for the 20 claps might not be accurate. ***1***

 iii) Requires a material medium to travel through. ******