**PHYSICS PAPER 3**

**MARKING SCHEME**

1.(a)(i): Length of cylinder = 2.46cm

 Diameter of cylindrical mass = 2.4cm

 Volume = πr2h

 = 1.76 cm3

(ii):Volume is determine by measuring the height and diameter of the cylindrical mass using the vernier caliper/ruler then equation V=πr2h is applied.

b.i. Centre of gravity = 50cm ± 0.5cm

TABLE – (5 marks)

c.(i): Graph labeling axis A (1m)

 Correct scale, S (1m)

 Plotting (1m)

 Line (1m)

(ii): Slope = dy = 13.5 – 0 = 0.9

 dx 15.0 – 9

(iii): F = S x W = 0.9N x 1

 = 0.9N

 Upthrust = Apparent loss in weight

 = W – F

 = 1 – 0.9

 = 0.10N

 Density = mass of liquid displaced

 Volume of liquid displaced

 = upthrust ÷ Vs

 g

 0.010 kg x 10000 g/kg = 0.8506 g/cm3

 Π 2.4 2 x 2.6

 2

**PART 2A**

i.E = 3.0 ± 0.1 volts (1m)

iv.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Length L(cm) | 10 | 20 | 30 | 60 | 70 | 80 |
| Length L(cm) | 0.1 | 0.2 | 0.3 | 0.6 | 0.7 | 0.8 |
| Volts (V) | 2.0 | 2.3 | 2.5 | 2.6 | 2.7 | 2.8 |
| E - V | 1.0 | 0.7 | 0.5 | 0.4 | 0.3 | 0.2 |
| EE-V | 3.0 | 4.3 | 6.0 | 7.5 | 10.0 | 15.0 |

 (5 marks)

v.

 Plotting (1m)

 Graph labeling axis A (1m)

 Correct scale S (1m)

 Line L (1m)

vi. S = 15 - 6 = 90 = 18.0 m-1 (2m)

 0.8-0.3 5

**PART 2B**

i.

|  |  |  |
| --- | --- | --- |
| **Object distance u(cm)** | **Image distance V(cm)** | **Magnification M v/u** |
|  50 |  47.0 |  0.94 |
|  60 |  40.0 |   0.67 |

ii.0.94 + 0.67 = 0.81 (1m)

 2

iii.1 = 1 + 1 f1 = 50 x 47 = 24.23 cm

 f V u 94

 f = Vu f2 = 60 x 40 = 2400 = 24.0 cm

 V + u 100 100

 Average = 24.23 + 24.0 = 24.1 cm

 2