**232/3 – PHYSICS PAPER 3 - MARKING SCHEME**

1. (b) E = 3.0V 🗸(1mk)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| (c) | Length L(m) | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
|  | Current I(A) | 0.6 | 0.52 | 0.44 | 0.4 | 0.35 | 0.29 |
|  |  | **1.667** | **1.923** | **2.273** | **2.5** | **2.857** | **3.448** |

 Correct values each ½mk max 3mks

 Correct values  ½mk max 3mks

1. Graph

- Axes well labeled with unit. (1mk)

- Scale simple uniform and easy to plot (1mk)

- Plotting 6 points (2mks)

 5 points (1mk)

 Less than 4 no mark

1. Gradient =  (1mk)

 =  (1mk)

 

 = 2.767Aˉ¹mˉ¹ (1mk)

 (h) (i) dave = 0.38mm (1mk)

 (ii) χ - section Area A =  × (1.9 × 10-4)² = 1.134 × 10-7m² (1mk)

1. From the equation



Gradient  (1mk)

But E = 2.9V, A = 1.134 × 10-7m²

K = 2.767 × 1.134 × 10-7 × 2.9

= 9.10 × 10-7Ωm (1mk)

Intercept = 1.08Aˉ¹

Q = 1.08Aˉ¹ × 2.9

 = 3.132Ω (1mk)

 **QUESTION 2**

Part A

b) Outline sketch of the triangular glass prism with rays and relevant angles drawn **(1mk)**

d)

1. **r1**  **(Penalize mk for unit not given i.e degrees in all angles) (1mk)**
2. **d (1mk)**
3. **r2**  **(1mk)**

 **e)** **(Correct substitution = mk)**

 **(Correct evaluation = mk)**

 f)

**(Correct substitution = mk)**

**(Correct evaluation = mk)**

  **mk)**

 g)

 **(Correct substitution = mk)**

 **(Correct evaluation = mk)**

1. **Refractive index of glass** (1mk)

 **Part B**

 f) **(I)**  = **19.5** (1mk)

 **(II) t1 = 110.46** s (1mk)

 **(III) t2 = 175.85** s (1mk)

1.

 **(Correct substitution = mk)**

 **(Correct evaluation = mk)**

 **(Correct substitution = mk)**

  **(Correct evaluation = mk)**

1. The rate of change of temperature will be lower than  **(1mk)**

 **Rate of cooling decreases with decrease in temperature difference. (1mk)**