**Name of the Student**:_____
**Max. Marks : 16 Marks** **Time : 16 Minutes**

Mark Schemes

## Q1.

(a) a curve in the first and third quadrants only, passing through origin

**1**

decreasing gradient

**1**

(b) any **two** from:

- $I_1 = I_2 + I_3$
- $I_2 = I_3$
- $I_1 = 2I_2$
- $I_1 = 2I_3$

*allow **1** mark for each correct description given in words*

**2**

(c) $3 = I^2 \times 12$

**1**

$$I = \sqrt{\left(\frac{3}{12}\right)}$$

**1**

$I = 0.5$ (A)

**1**

$Q = 0.5 \times 60 = 30$

*allow Q =*
*their calculated I × 60*

**1**

$Q_{total} = 60$

*allow an answer that is consistent with their calculated value of I*

**1**

**or**

$3 = I^2 \times 12$ (1)

$$I = \sqrt{\left(\frac{3}{12}\right)}$$

$I = 0.5$ (A) (1)

$I_{total}$ = 1.0 (A) (1)

*allow $I_{total}$ = their I × 2*

Q = 1.0 × 60 = 60 (1)

*allow an answer that is consistent with their calculated value of I*

coulombs **or** C

**1**

*an answer of 60 scores **5** calculation marks*

(d) **Level 3:** Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account.

**5–6**

**Level 2:** Relevant points (reasons / causes) are identified, and there are attempts at logically linking. The resulting account is not fully clear.

**3–4**

**Level 1:** Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.

**1–2**

**No relevant content**

**0**

**Indicative content**

- resistance of LDR changes when light intensity changes
- when light intensity increase resistance of LDR decreases

- overall resistance of circuit decreases
- potential difference across total resistance remains unchanged
- current in ammeter increases

- potential difference across fixed resistor increases
- potential difference across LDR decreases
- reading on the voltmeter decreases

- potential difference is shared between the components in series
- the lower the resistance of the LDR the smaller the share of the potential difference
- reading on the voltmeter decreases

**[16]**