

Electric circuits

Mark Scheme 5

Level	IGCSE
Subject	Physics
ExamBoard	CIE
Topic	Electricity and Magnetism
Sub-Topic	Electric circuits
Paper Type	(Extended) Theory Paper
Booklet	Mark Scheme 5

Time Allowed: 24 minutes

Score: /20

Percentage: /100

- 1 (a) (i) 0(A) / zero Unit penalty if wrong unit B1
- (ii) 12 V B1
- (b) (i) V / R OR $V = IR$ in any form, letters, words or numbers C1
0.5 A A1
- (ii) $8 \times$ candidate's (i) OR $8/24 \times 12$ C1
4 V OR 4.0 V e.c.f. A1
- (c) $1/R_1 + 1/R_2 = 1/R$ OR $R = R_1R_2 / (R_1 + R_2)$ in any form B1
5.3 (Ω) OR $5\frac{1}{3}$ (Ω) OR $16/3$ (Ω) C
12 / candidate's R C1
2.25 A c.a.o. A1
- Alternatively: $12/16 (= 0.75)$ OR $12/8 (= 1.5)$ C1
 $12/16 (= 0.75)$ AND $12/8 (= 1.5)$ C1
Currents added C1
2.25 A c.a.o. A1 [10]
- 2 (a) all 4 lights in parallel with supply and none in series B1
master switch in a place where it will work (cannot score if no supply or if short
circuit) B1
- one switch for 2 lights in living room AND one for bathroom
AND one for bedroom B1
- (b) (i) $W = V \times I$ or $100 = 200 \times I$ in any form C1
0.5 A or 0.5 a A1
- (ii) $I \times t$ or 0.5×60 e.c.f. C1
30 C or 30 c e.c.f. A1
- (c) (i) 135 W B1
- (ii) any power \times any time (words or symbols or numbers) C1
NOTE: 280 (W) is the total power of lamps in house, so counts as "power"
- 486 000 J or 486 kJ or 0.135 kWh accept lower case units A1
NOTE: $45 \times 3600 = 162000$ J gets e.c.f. from (i)