Cambridge Assessment International Education

Interactive

Interactive Example Candidate Responses

Paper 3 (May / June 2016), Question 10

Cambridge IGCSE™
Physics 0625

Version 2.0

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MIDDLE | LOW

10 A student makes the circuit shown in Fig. 10.1 using a 12V battery.

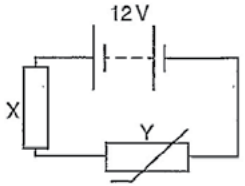

Fig. 10.1

(a) Complete the sentences about the circuit. Use words from the box.

fixed resistor	lamp	light-dependent resistor	parallel	series	thermistor

(i) Components X and Y are connected in Series [1]

(ii) The component Y is a fixed resistor [1]

(b) Fig. 10.2 shows how the resistance of Y varies with temperature.

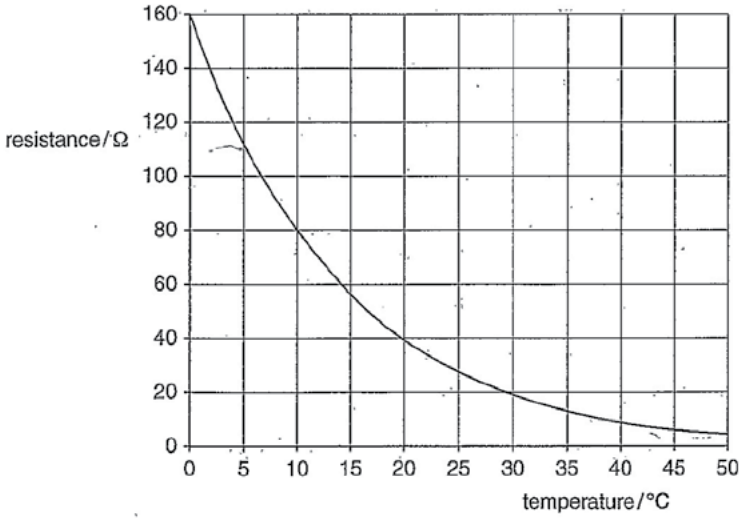

Fig. 10.2

(i) Describe how the resistance of Y varies with temperature.

The lesser the ~~resistance~~ temperature the the higher the resistance [2]

	Your Mark
10(a)(i)	
10(a)(ii)	
10(b)(i)	
10(b)(ii)	
10(b)(iii)	

Q10	Mark scheme
(a)(i)	series
(a)(ii)	thermistor
(b)(i)	resistance decreases as temp increases at decreasing rate OR not proportional OR not linear
(b)(ii)	resistance of Y = 80 Ω $R_t = R_1 + R_2$ in any form 100 (Ω)
(b)(iii)	$V = IR$ in any form 12 ÷ 100 OR 12 ÷ candidates (b)(ii) 0.12 (A) OR ECF from (b)(ii)

EXAMINER COMMENTS

MARK SCHEME

(ii) The temperature of Y is 10 °C. The resistance of X is 20 Ω.

Calculate the combined resistance of Y and X.

80 + 20 = 100

resistance = 100 Ω [3]

(iii) Calculate the current in the circuit.

I = V/R

220/10

160 + 140 + 120 + 100 + 80 + 60 + 40 + 20

current = 0.02 A [3]

10

[Total: 10]

I = 12

= 12

160 + 140 + 120 + 100 + 80 + 60 + 40 + 20 220

	Your Mark
10(a)(i)	
10(a)(ii)	
10(b)(i)	
10(b)(ii)	
10(b)(iii)	

Q10	Mark scheme
(a)(i)	series
(a)(ii)	thermistor
(b)(i)	resistance decreases as temp increases at decreasing rate OR not proportional OR not linear
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10 A student makes the circuit shown in Fig. 10.1 using a 12V battery.

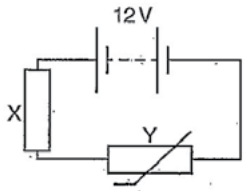

Fig. 10.1

(a) Complete the sentences about the circuit. Use words from the box.

fixed resistor	lamp	light-dependent resistor	parallel	series	thermistor

(i) Components X and Y are connected in parallel [1]

(ii) The component Y is a fixed resistor. [1]

(b) Fig. 10.2 shows how the resistance of Y varies with temperature.

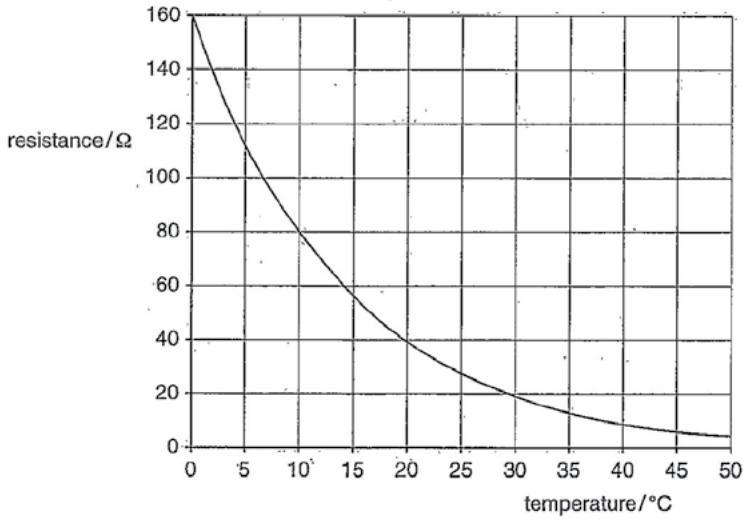

Fig. 10.2

(i) Describe how the resistance of Y varies with temperature.

As the resistance of y decreases the temperature of y increases. [2]

Select page

MIDDLE LOW

Your Mark

10(a)(i)

10(a)(ii)

10(b)(i)

10(b)(ii)

10(b)(iii)

Q10	Mark scheme
(a)(i)	series
(a)(ii)	thermistor
(b)(i)	resistance decreases as temp increases at decreasing rate OR not proportional OR not linear
(b)(ii)	resistance of Y = 80 Ω $R_t = R_1 + R_2$ in any form 100 (Ω)
(b)(iii)	V = IR in any form 12 ÷ 100 OR 12 ÷ candidates (b)(ii) 0.12 (A) OR ECF from (b)(ii)

EXAMINER COMMENTS

MARK SCHEME

(ii) The temperature of Y is 10 °C. The resistance of X is 20 Ω.

Calculate the combined resistance of Y and X.

$r = \frac{1}{y} \times X\,\Omega$

$r = 80\,\Omega \times 20\,\Omega = 1600\,\Omega$

resistance = 1600 Ω [3]

(iii) Calculate the current in the circuit.

$\text{Current} = \frac{V}{R} = \frac{12\,V}{1600\,\Omega} = 133.3\,A$

current = 133.3 A [3]

[Total: 10]

Select page

MIDDLE LOW

	Your Mark
10(a)(i)	
10(a)(ii)	
10(b)(i)	
10(b)(ii)	
10(b)(iii)	

Q10	Mark scheme
(a)(i)	series
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EXAMINER COMMENTS MARK SCHEME

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