

Multiple Choice Answers

Q35: D

Multiple Choice Answers

Q34: D

Multiple Choice Answers

Q33: A

Q37: A

5(a)	<u>sum of</u> current(s) into junction = <u>sum of</u> current(s) out junction or (algebraic) sum of current(s) at a junction is zero
5(b)(i)	$(V =) E - Ir$
	$(V =) 5.0 - (38 \times 10^{-3} \times 4.7) = 4.8 \text{ (V)}$
5(b)(ii)	$R_{(Z)} = 120 \Omega$
	$I_2 = 38 \times 10^{-3} - (4.8 / (100 + 120))$
	$I_2 = 0.016 \text{ A}$
	or
	$R_{(Z)} = 120 \Omega$
	$R_{(\text{EXT})} = 4.8 / 38 \times 10^{-3}$
	$(= 126 \Omega)$
	$1 / R_{(Y)} = 1 / 126 - 1 / (120 + 100)$
	$(R_{(Y)} = 297 \Omega)$
5(b)(iii)	$I_2 = 4.8 / 297$
	$I_2 = 0.016 \text{ A}$
	$P = IV \text{ or } P = I^2 R \text{ or } P = V^2 / R$
	$P = 0.016 \times 4.8$
	or
5(b)(iv)	$P = 0.016^2 \times (4.8 / 0.016)$
	or
	$P = 4.8^2 / (4.8 / 0.016)$
	$P = 0.077 \text{ W}$
	resistance of the LDR / Z increases (as light intensity decreases)
	<u>total</u> resistance (of the circuit) increases
	or
	current <u>in the battery</u> decreases
	(potential difference across the internal resistor decreases so) the terminal potential difference increases

Multiple Choice Answers

Q37: C

Multiple Choice Answers

Q35: D

Multiple Choice Answers

Q36: C

Multiple Choice Answers

Q33: A

Multiple Choice Answers

Q34: B

Q36: B

7(a)(i)	(V =) $1.50 - 1.36$ (= 0.14 V)
	current = V / R $= 0.14 / 0.28 = 0.50 \text{ A}$
7(a)(ii)	resistance = V / I $= 1.36 / 0.50$ $= 2.7 \Omega$
	$R = 2.7 - 1.0$ $= 1.7 \Omega$
7(b)(i)	two resistors correctly shown in parallel with cell and no other components
7(b)(ii)	(external) resistance is now smaller and (so) current (in cell) is greater / (external) resistance smaller fraction of total resistance / internal resistance larger fraction of total resistance
	(greater p.d. across internal resistance so) terminal p.d. is less