

Page	Answers			
3	1. B 2. B	4. 50V 5. 6V	6. 500J 7. 0.83C 8. C	
4	8. (a) 22.5J 9. (b) 0.9J 9. (c) 15J 10. (a) 3V	10. (b) 0.02V 10. (c) 375V 11. (a) 6C	11. (b) 6C 11. (c) 3.33C 12. 100J 13. (a) 50000C	13. (b) 5MA 14. (a) 3J 14. (b) 1800J
5	1. 183.2V 2. $3.2 \times 10^{-16} \text{J}$ 3. 625V 4. $1.3 \times 10^7 \text{ms}^{-1}$	5. $1.6 \times 10^{-19} \text{J}$ 6. (a) $4.5 \times 10^{-15} \text{J}$ 6. (b) $9.4 \times 10^7 \text{ms}^{-1}$	6.(c) $1.9 \times 10^{16}$ electrons 6. (d) $E_k$ to light	
6	7.(a) (i) A $1.5 \times 10^{-3} \text{Ns}$	7.(a) (i) B $60 \text{ms}^{-1}$ 7. (a) (ii) impulse = area under graph = $30 \text{ms}^{-1}$	7. b $40.3 \text{ms}^{-1}$	
7	1. (a) 0.67A 1. (b) 0.9A	2. (a) 6V, 6V 2. (b) 6V, 18V 3. C	4. voltmeter = increases ammeter = decreases	
8	1. (a) $15 \Omega$ 1. (b) $4 \text{k}\Omega$ 1. (c) $2.25 \text{M}\Omega$	1. (e) $21 \Omega$ 1. (f) $10.9 \text{k}\Omega$ 2. (a) $4 \Omega$ 2. (b) $3.33 \Omega$	2. (c) $0.9 \Omega$ 2. (d) $200 \Omega$ 3. B 4. C	
9	5. (a) (i) $10 \Omega$ 5. (a) (ii) $20 \Omega$ 5. (b) (i) $6.67 \Omega$ 5. (b) (ii) $26.67 \Omega$ 5. (c) (i) $2 \Omega$	5. (c) (ii) $6 \Omega$ 5. (d) (i) $3.75 \Omega$ 5. (d) (ii) $8.75 \Omega$	5. (e) (i) $4 \Omega$ 5. (e) (ii) $28 \Omega$ 7. (a) (i) $12 \Omega$ 7. (a) (ii) 1A	7. (a) (iii) 9V, 3V 7. (b) (i) $2 \Omega$ 7. (b) (ii) 6A 7. (b) (iii) 12V
10	8. 18V 9. 3A 10. $12 \Omega$	11. (a) 9.6V 11. (a) 9.6V 11. (b) 4A	12. (a) 12V 12. (b) 2A	13. 6W 14 (a) $55.1 \Omega$ 14 (b) 838.9W
11	2. $\text{Jc}^{-1}$ 3 (a) e.m.f	3 (b) interl resist 4. 0.31A	5. 0.3A 6 (c) $0.25 \Omega$	6 (d) $1 \Omega$ 7. B
12	8. (b) $V_D$ 9. (a) 1.3V 9. (b) decreases 9. (c) decreases	10. (a) $3 \Omega$ 10. (b) $0.6 \Omega$	11. (a) 2V 11. (b) 1.6V 11. (c) $2 \Omega$	11 (d) (i) increase to 1.33A 11 (d) (ii) decrease to 1.33V
13	12. (b) (i) $8 \Omega$	12. (b) (ii) 5.6V	12. (c) decreases	
14	13. (a) (i) 0.508V	13. (a) (ii) $0.585 \Omega$	13. (b) decreases	
15	14 (b)(ii)(A) 5.45 V 14 (b) (ii) (B) $0.9 \Omega$	15. $E = 1.12 \text{V}$ , $r = 4.17 \Omega$ 15 .(a) 1.34A	15. (b) 0.61V 15. (c) 4.1W 15. (d) 0.06W	
16	16 (a) (i) 4.8V) $2 \Omega$	16 (b) (i) 20A	16 (b) (ii) 55.4W	

