



Complete, fold and seal
(see note 2 below)

SURNAME: Smith

FORENAME(S): Joshua

Examination Answer Books

12 Pages

Instructions to Candidates

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.

1	Student Number	SMI16836261
2	Title of Examination Paper	Electrical And Electronics principles
3	Module Code	G0EE4003
4	Date and Time of Examination	16/05/22
5	Examination Venue	W2
6	Seat Number	13
7	Number of Answer Books handed in	

List the numbers of the questions you have attempted	Office Use
1	
2	
3	
4	
Q1	0
Q2	7
Q3	0
Q4	0
Total	7/100

70%
✓
Kef

Q1
0/25

i) $\frac{1}{R_6} = \frac{1}{10} + \frac{1}{12} + \frac{1}{8} = \frac{31}{30} \Rightarrow R_6 = 30\Omega$ ✓

$R = R_6 + R_7 = 10 + 2 = 12\Omega$ ✓

$R_E = 42\Omega$ ✓

ii) $R_1 = 10\Omega$ ✓

$W_1 = 8 \times 10 = 80W$

$R_2 = 80 \div 5 = 16\Omega$ ✓

$A = 80V$ ✓

iii)

iii) $I_1 = 80 \div 10 = 8A$ ✓

$I_2 = R_E$

$= 80 \div 30 = 2.6A$ ✓

Question Two

Q2

7/15

i) $X_{ac} = 2\pi fC$ ✓
 $= 2 \times \pi \times 50 \times 0.3$ ✓

$X_{ac} = 94.8 \Omega$ ✓ 3

ii) $X_C = \frac{1}{2\pi fC}$ ✓

$= \frac{1}{2 \times \pi \times 50 \times 0.1 \times 10^{-6}}$ ✓ 2

$= 4.7 \times 10^{-3} \Omega$ ✓

iii) $Z = \sqrt{R^2 + (X_C - X_L)^2}$ ✓

$= \sqrt{50^2 + (94.8 - 4.7 \times 10^{-3})^2}$ ✓ 1

$= 1.1 \times 10^3$ units

iv) $V = I \times R$

$= \frac{V}{R}$ ✓ 2

$= \frac{25}{50}$ ✓ 4

$= 0.5 A$ ✓

Question Three

$$a) I_1 = 15V \div 5\Omega$$

$$= 3A$$

✓

Q3a

Q

$$I_2 = 15V - 10V \div 5V$$

$$= 5 \div 6$$

✗

Q3b

Q

$$= 0.83 A$$

$$I_3 = 10V \div 10\Omega$$

$$= 1A$$

✗

✓

Question four

i)

$$V_E = 1 \times 10^3 \times 1 \times 10^{-3}$$

$$= 1V \times$$

Q4

02

