



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Examination Answer Books

12 Pages

Complete, fold and seal
(see note 2 below)

SURNAME: Rees

FORENAME(S): Ben Owen

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	ROS17841199
2	Title of Examination Paper	Electrical and
3	Module Code	GOEE4003
4	Date and Time of Examination	16/5/22 AM
5	Examination Venue	W2
6	Seat Number	6

7	Number of Answer Books handed in	
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List the numbers of the questions you have attempted	Office Use
Q1	15
Q2	8
Q3	5
Q4	17
Total	45/100

45%
K.G.

1)

i. $R_{34} = \frac{12 \times 8}{12 + 8} = \frac{96}{20} = 4.8 \Omega$ ✓
 $R_{346} = \frac{10 \times 4.8}{10 + 4.8} = \frac{48}{14.8} = 3.24 \Omega$ ✓
 $10 + 3.24 = 13.24 \Omega$ ✓

Q1

15/25

$R_{3456} = \frac{10 \times 14.8}{10 + 14.8} = \frac{148}{24.8} = 5.967 \Omega$ ✓

$R_{34567} = 5.97 + 2 = 7.97 \Omega$ ✓

10

ii. R_{34567} Current through A = 3A ✓
 Voltage through A = 30V ✓
 $(I/R) \quad 3 \times 10 = 30$ ✓

iii.

$P = I^2 R \quad P = 3^2 \times 7.97 = 71.73W$ ✓

iv.

2

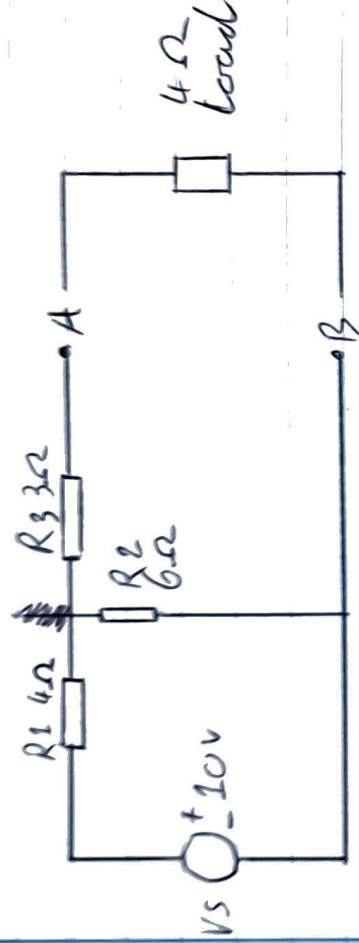
Q2

i. $X_L = 2\pi fL = 2\pi \times 50 \times 0.3 = 94.25 \Omega$ ✓
 ii. $X_C = \frac{1}{2\pi fC} = \frac{1}{2\pi \times 50 \times 10^{-4}} = 159.15 \Omega$ ✓
 iii. $Z = \sqrt{R^2 + (X_L - X_C)^2} = \sqrt{50^2 + (94.25 - 159.15)^2} = 106.69 \Omega$ ✓
 iv. $V/I = Z \quad 150 = 2A \quad \checkmark$ ✓
 v. $P = VI = 150 \times 2 = 300W$ ✓

8/15

~~Answer ym unig~~

S. D.



Q3a

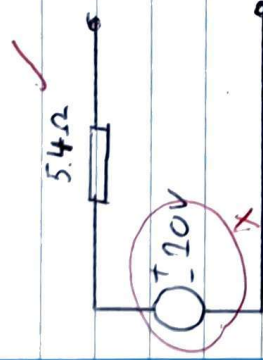
Q

Q3b

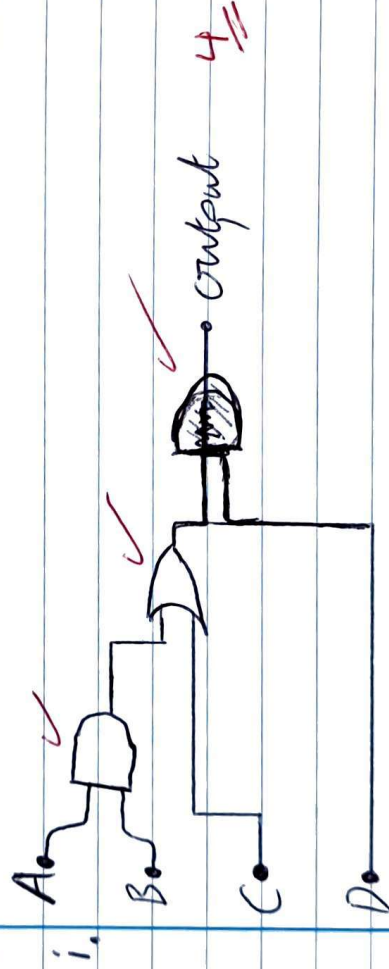
5/15

i. $R_{12} = \frac{4 \times 6}{4 + 6} = 2.4 \Omega$ ✓
 $R_{123} = 2.4 + 3 = 5.4 \Omega = R_{th}$ ✓

5

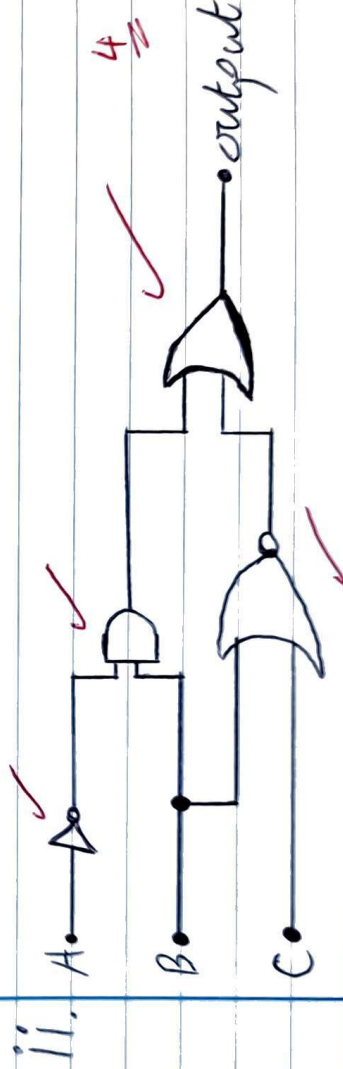


4. b.



Q4b

8/8



4C.

i.

$$A.\bar{B} + C$$

ii.

$$A.(B + \bar{B}.C)$$

d.

$$Y = (\overline{A.B})(\overline{A + \bar{C}})$$

$$Y = (\overline{A.B}) + (\overline{A + \bar{C}})$$

$$Y = A.(B + C)$$

~~Redwood question~~

~~Redwood question~~

~~Redwood question~~

3/4

✓

Q4C

6/6

Q4d

3/6