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

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.**

Complete, fold and seal
(see note 2 below)

SURNAME: Silman

FORENAME(S): Thomas David

1	Student Number	2124280
2	Title of Examination Paper	Electronics 1
3	Module Code	SGEE 4003
4	Date and Time of Examination	15/5/23 09:30
5	Examination Venue	
6	Seat Number	34
7	Number of Answer Books handed in	

List the numbers of the questions you have attempted	Office Use
A	13.
B3	4
Total	17

17 - mark confirmed

(Gweler yr ochr arall am y fersiwn Cymraeg)

(See the other side for English version)

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Llyfr Atebion Arholiadau

12 Tudalen

Cyfarwyddiadau i Ymgeiswyr

1. Rhowch yr holl wybodaeth y gofynnir amdani yn y blychau isod.
2. Rhowch eich enw yn y lle a ddarparwyd ar y dde, plygwch ef a'i selio i lawr (gan defnyddio'r label a ddarparwyd) i guddio'ch enw.
3. Rhaid i'r atebion fod mewn llawysgrifen ddarllenadwy. Gall yr Arholwyr naill ai anwybyddu sgript annarllenadwy, neu drefnu iddi gael ei theipio a chael yr ymgeisydd i dalu.
4. Ysgrifennwch eich atebion mewn inc.
5. Dechreuwch bob ateb ar ddalen newydd. Gwnewch unrhyw fras nodiadau yn y llyfr atebion a thynnu llinell drwyddynt.
6. Ni ddylid rhwygo unrhyw ran o'r llyfr hwn; rhaid ei gyflwyno yn gyfan.
7. Os defnyddir mwy nag un llyfr, rhwymwch hwy gyda'i gilydd gan ddefnyddio'r tagiau sydd ar gael oddi wrth y gwylwyr/gwylwyr.
8. **Rhaid dychwelyd pob llyfr. Ni chaniateir mynd â llyfrau atebion, wedi eu defnyddio neu heb eu defnyddio, allan o'r lleoliad arholi o dan unrhyw amgylchiadau.**

1	Rhif Myfyriwr	
2	Teitl y Papur Arholiad	
3	Cod y Modwl	
4	Dyddiad ac Amser yr Arholiad	
5	Lleoliad yr Arholiad	
6	Rhif Sedd	
7	Nifer y Llyfrau Atebion a gyflwynwyd	

Rhestrwch rifau'r cwestiynau a ymgeisiwyd gennych	At Ddibenion y Swyddfa
Cyfanswm	

Llenwch, plygwch a selwch
(gweler nodyn 2 isod)

CYFENW:

ENW(AU) CYNTAF:

Question No. | Examiner Only

A1. Materials such as Silicon have ~~space~~ Space in their outer Shell allowing electrons to pass through when charged by a current — (0)

A2. $R_s = \frac{V_s - V_D}{I_f}$ $RS = \frac{6-2.2}{8mA}$ $R_s = \frac{3.8}{8mA}$ ~~$R_s = 0.475k\Omega$~~ $R_s = 0.475\ k\Omega$ — (3)

A3. $I_E = I_c + I_B$ $\beta = \frac{I_c}{I_B}$ $\beta = 90$ $90 = \frac{I_c}{I_B}$ $90 = \frac{I_c}{30\mu A}$ $I_c = 90 \times 30 = 270\mu A$ 2-7m.

$I_E = I_c + I_B$ $I_E = 270 + 30$ $I_E = 300\mu A$ — (2½)

~~A4.~~

A5. $A_V = \frac{R_F + R_S}{R_S}$ $A_V = \frac{30k + 1.5k}{1.5k}$ $\frac{31.5k}{1.5k} = 21$ $A_V = 21$. CARRIED OVER. $-\frac{R_F}{R_S}$ — (2)

A6. $R_F = 330k\Omega$ $R_1 = 4.7k\Omega$ $R_2 = 56k$ $R_3 = 12k\Omega$ $200\mu V$ input ~~flow~~

$A_V = \frac{V_{out}}{V_{in}} = -\frac{R_F}{R_S}$ $\frac{?}{1020\mu V} = -\frac{330k\Omega}{4.7k\Omega}$ -70.21 ✓

$714000\mu V$? ~~$= -\frac{330k}{56k}$~~ $= -\frac{330k}{56k}$ ✓ $= -5.892$ ✓ $714000\mu V \times 5.892 = 4206888\mu V$

$4206888\mu V - \frac{330k}{12k}$ ✓ -27.5 ✓ $4206888 \times 27.5 = 115689420$ — (4½)

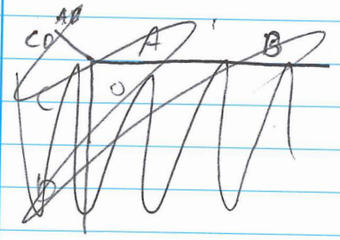
A7. $f_c = \frac{1}{2\pi R_B C}$ ✓ $\frac{1}{2\pi \times 100k \times C}$ * — (1)

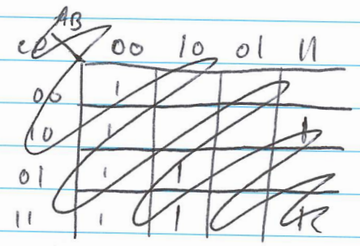
~~A8.~~

Athrawr yn unig | Rhif y Cwestiwn 13

Question No.

A9. $F = \bar{A}\bar{B} + ABC + A\bar{B}D + A\bar{B}CD$





CD \ AB	00	01	11	10
00	1	0	0	0
01	1	0	0	1
11	1	0	1	1
10	1	0	1	0

Final answer

✗

0

B3. a

B3. b.

J	K	Q	Q^+	Comments
0	0	0	0	Q and Q^+
0	0	1	1	
1	0	0	1	J Q^+ Nand
1	0	1	1	Q
0	1	0	0	K Nand Q
0	1	1	0	
1	1	0	1	Jk and
1	1	1	0	Q or Q^+

4

4

Examiner Only

Question No.

Examiner Only

Afrolwr yn unig

Rhif y Cwestiwn

Afrolwr yn unig

Rhif y Cwestiwn