

$x[-n]$

12 Pages

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right of the boxes and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either read the script or have it typed and the expense of typing is 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.**

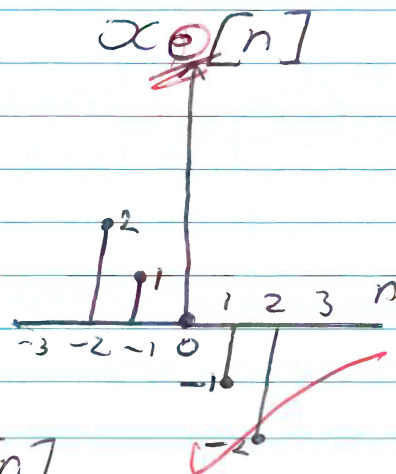
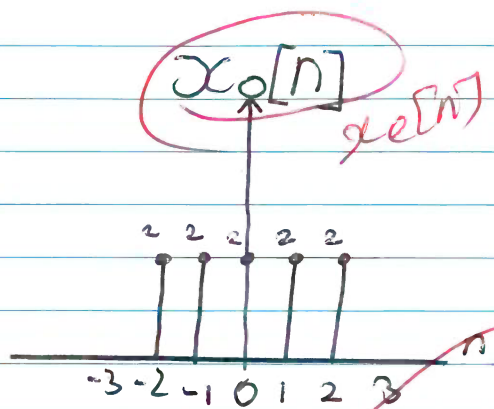
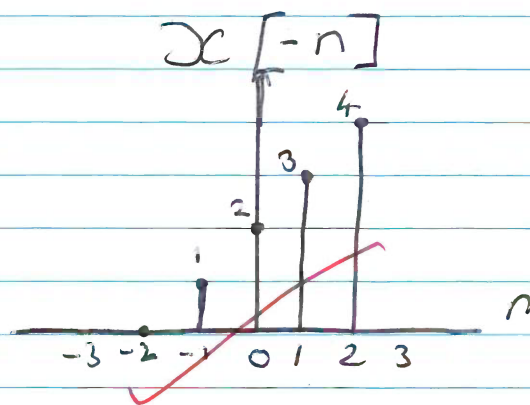
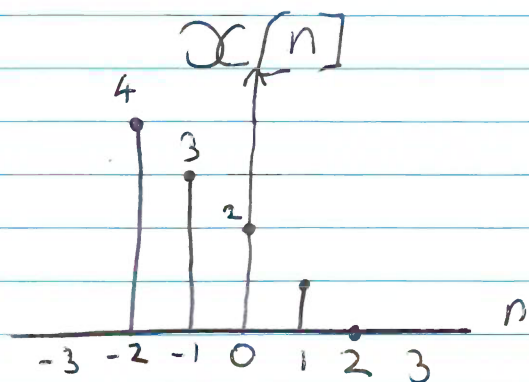
1	Student Number	2413881
2	Title of Examination Paper	Signals and Systems
3	Module Code	ACDA4009
4	Date and Time of Examination	09:30 11 th May 2026
5	Examination Venue	310 IQ Swansea
6	Seat Number	19
7	Number of Answer Books handed in	1

List the numbers of the questions you have attempted	Office Use
Q1	12
Q2	-0-
Q3	03
Q4	25
Total	40/100

(Gweler yr ochr arall am y fersiwn Cymraeg)

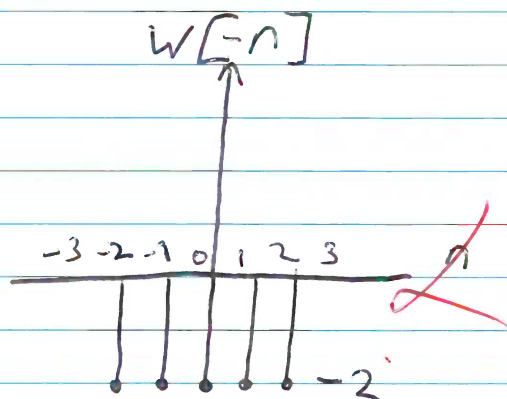
pg 1
12/5/26

Q1 a i.

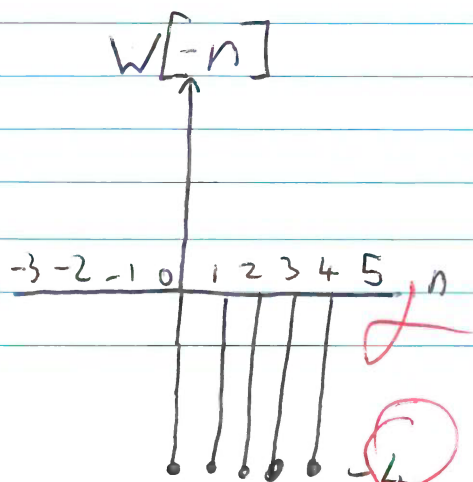


ii. $x_e[n] + x_o[n] = x[n]$

iii. if $w[n] = x_o[n]$ then find $w[-n]$



iv. $w[-n]$ (Scaled)

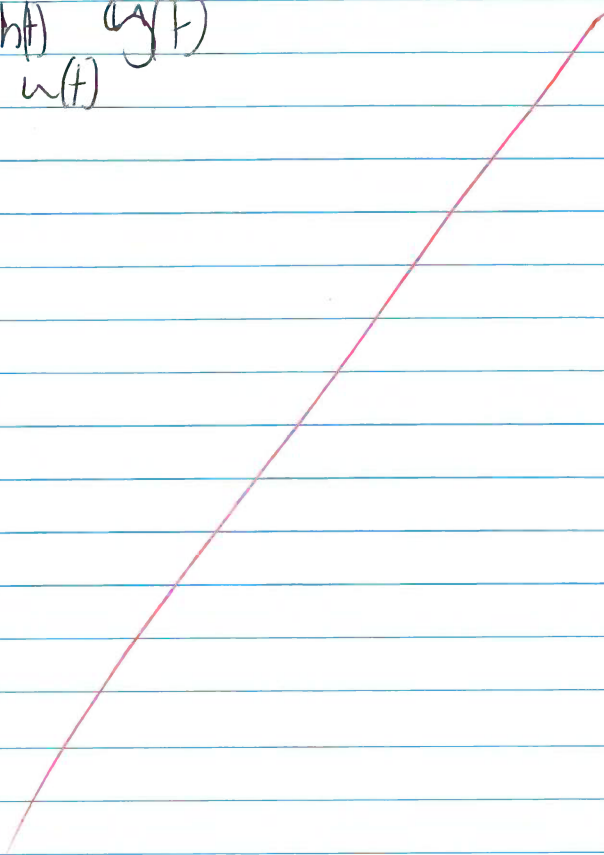


procedures correct for the wrongly labelled components.

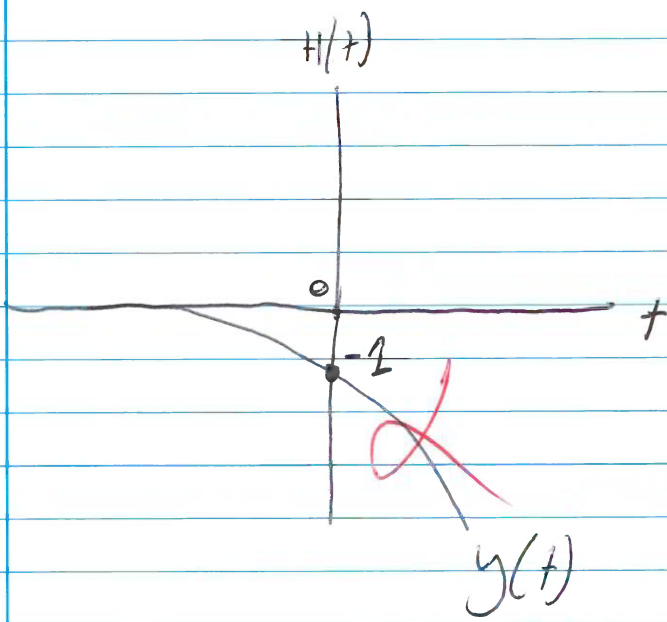


Q2.

$$x(t) \xrightarrow{h(t)} y(t)$$
$$x(t) = u(t)$$



V1.

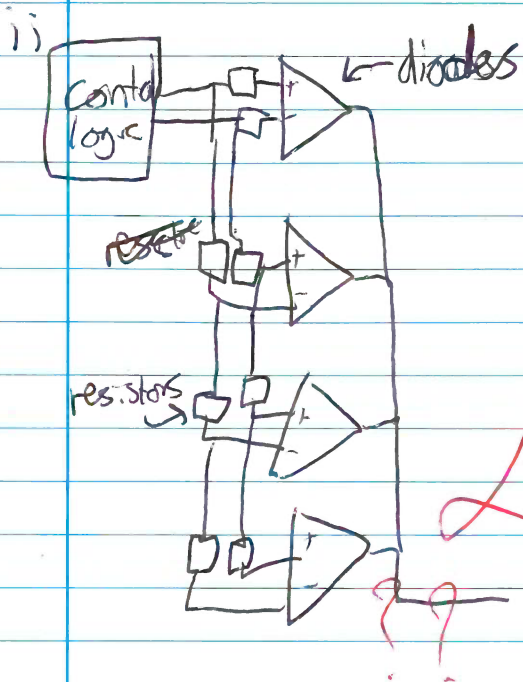


0

0.5



Q3.i A flash type ADC uses a large column of resistors and diodes to flash light.



iii). $V_i > V_a$
 $V_i \leq V_a$

Flash type ADC uses 3-bit binary inputs by reading 0-7 in binary (table below) and using the binary to digitally output signals

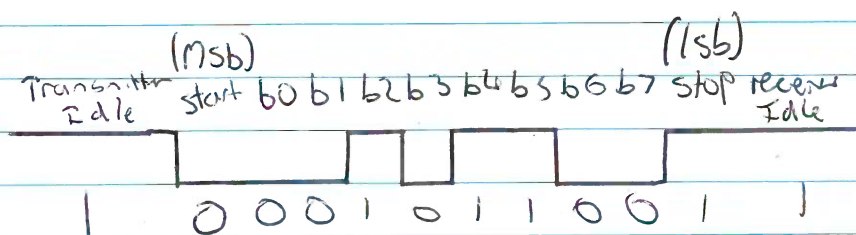
iv). ~~3bit = 100~~

3bit = 011

0	-	000	-	0
1	-	001	-	1
2	-	010	-	2
3	-	011	-	3
4	-	100	-	4
5	-	101	-	5
6	-	110	-	6
7	-	111	-	7

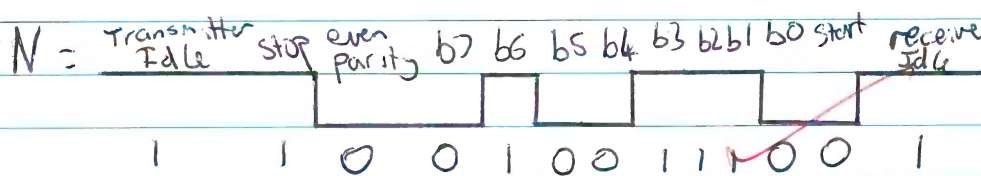
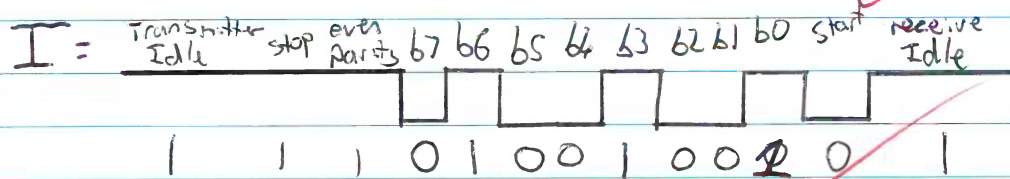
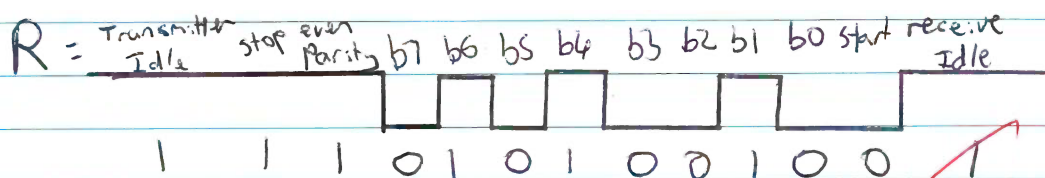
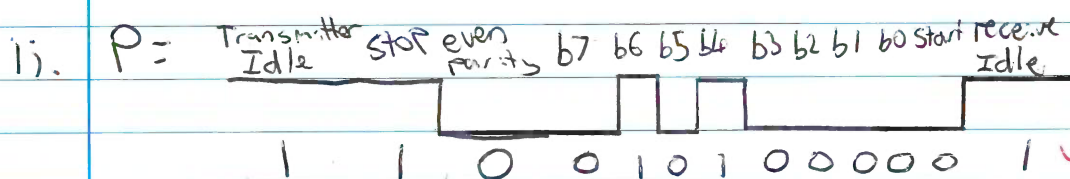
03
25

Q4.a. The transmission and reception frame of UART is ~~8-bit~~ an 8-11 bit signal moving from transmit to receive and start and stop (msb, lsb)



b.i PRINT

P = Hex 50 binary 01010000 ✓
 R = Hex 52 binary 01010010 ✓
 I = Hex 49 binary 01001001 ✓
 N = Hex 4E binary 01001110 ✓
 T = Hex 54 binary 01010100 ✓



0 - 0000
1 - 0001 A - 1010
2 - 0010 B - 1011
3 - 0011 C - 1100
4 - 0100 D - 1101
5 - 0101 E - 1110
6 - 0110 F - 1111
7 - 0111
8 - 1000
9 - 1001



Examiner Only

Question No.

