



12 Pages

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 the 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.**

List the numbers of the questions you have attempted	Office Use
1 ~~A~~	- 0 -
2	- 0 -
3	- 0 -
4	3 1/2 +
Total	04/100

(Gweler yr ochr arall am y fersiwn Cymraeg)

$\frac{PL}{1/5/26}$

a)

$$i) x_e[n] = 2$$

$$x_o[n] = 3$$

$$x[n] = 5$$

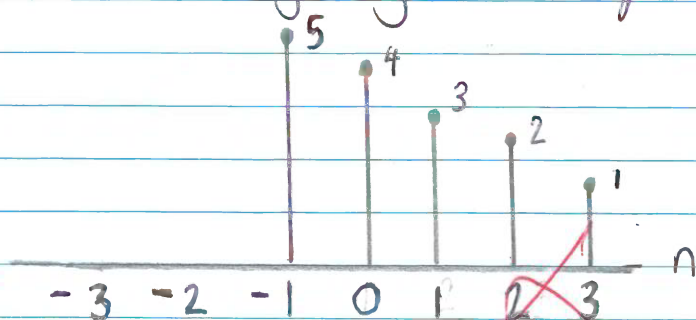
$$ii) \frac{x_e[n]}{2} + \frac{x_o[n]}{3} = x[n]$$

$$iii) w[n] = x_o[n]$$

$$w[-n] = -3$$

iv)

$w[-n]$ by a factor of 2 and shift it right by a unit of 2.



a)

$$i) \quad h(t) = x(t) \times u(t) - 1$$

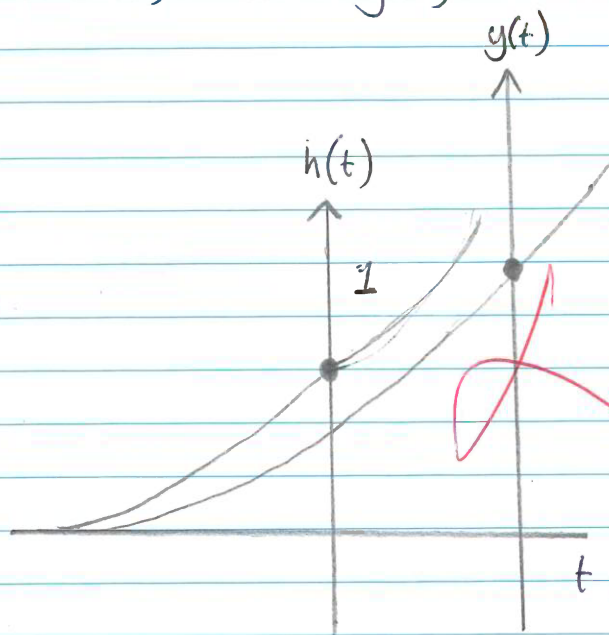
$$ii) \quad x(t) \times h(t) = y(t)$$

$$iii) \quad x(t) \times h(t) = y(t) \quad x(t) = u(t) = h(t) \div y(t)$$

$$iv) \quad x(t) \times h(t) = y(t)$$

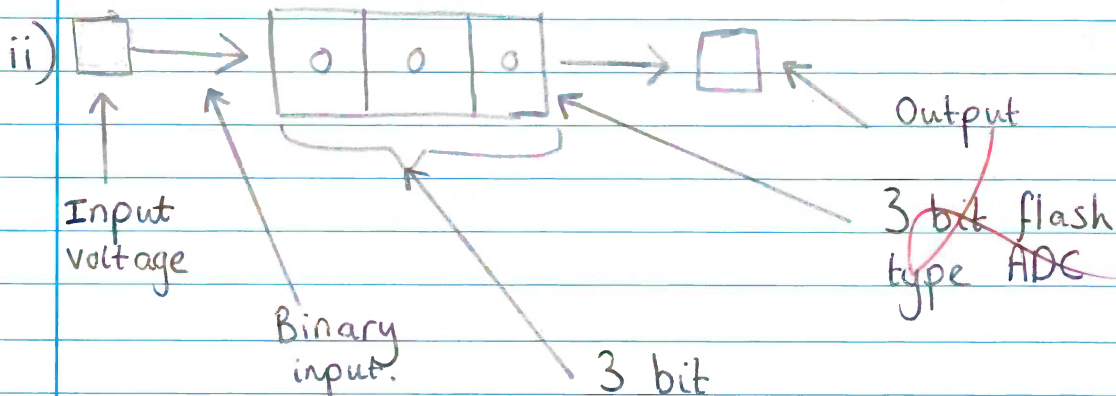
$$v) \quad x(t) \times h(t) = y(t)$$

vi)

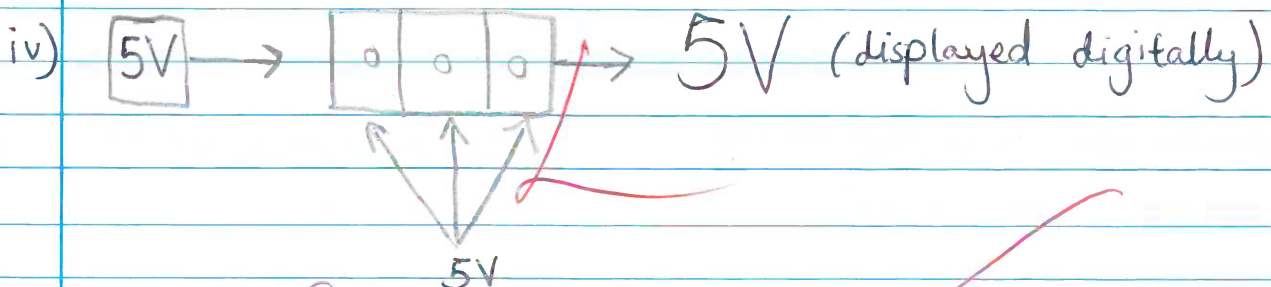


a)

- i) A flash type ADC is ~~analog~~ a type of ADC which can be used with different numbered bits, using different inputs to run. ~~Flash type~~ A flash type ADC uses voltage inputs to obtain digital form to finalise its basic working principle.



- iii) A flash type ADC with 3 binary inputs can allow more input voltage to the flash type ADC as there are three binary inputs, the more binary inputs, the larger amount of voltage input that the flash type ADC can withstand. The ~~input~~ input voltage enters the flash type ADC, via the 3 bit binary inputs. The data is then transmitted in the flash type ADC and is sent to the output.



Question 4

a) A UART is an output receptor which uses binary representation to communicate scenarios by transmitting messages when connected. The transmission and reception frame of the UART is where the string is firstly transmitted by the UART, from the input device and then repected to analyse what string message to display.

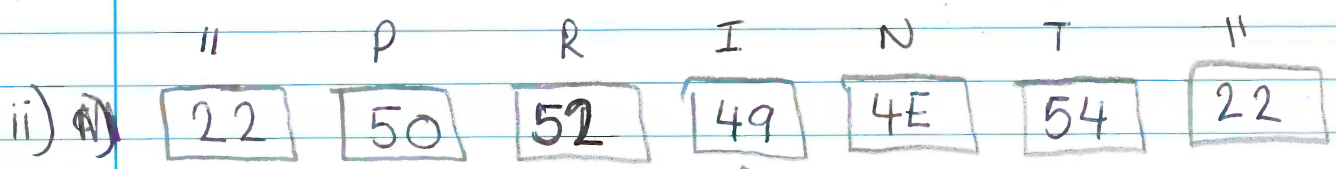
1 1/2

b) "PRINT" 22, 50, 52, 49, 4E, 54, 22
i)

2 1/2

- " = 22
- P = 50
- R = 52
- I = 49
- N = 4E
- T = 54
- " = 22

Transmitted String



UART data frame

ASCII character

0



Question No.

Examiner Only

Arholwr yn unig

Rhif y Cwestiwn

