

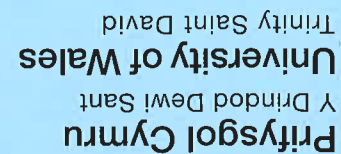


12 Pages

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 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	2108815
2	Title of Examination Paper	Computer Architecture
3	Module Code	ACCA4022
4	Date and Time of Examination	22/11/2023 10:00
5	Examination Venue	QP
6	Seat Number	D4
7	Number of Answer Books handed in	

(Gweler yr ochr arall am y fersiwn Cymraeg)

[illegible]

12 Tudalen

Cyfarwyddiadau i Ymgeiswyr

1. Rhwch yr holl wybodaeth y gofynnir amdani yn y blychau isod.
2. Rhwch eich enw yn y lle a ddarparwyd ar y dde, pwygch e'f a'i seilio i lawr (gan ddefnyddio'r label a ddarparwyd) i guddio'ch enw.

3. Rhaid i'r atebion fod mewn llawysgrffen ddarlennadwy. Gall yr Arholwyr nail i atwngbyddu sgript annarllennadwy, neu drefnu iddi gael ei theipio a chael yr ymgeisydd i dalu.

gael ei theipio a chael yr ymgeisydd i dalu.

4. Ysgrifennwch eich atebion mewn inc.

5. Dechreuwch bob ateb ar dudalen newydd. Gwnewch unrhyw ffras nodiadau yn y llyfr atebion a thynnwch llinell drwyddynt.

6. Ni ddylid rhwgo 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 amgylchadau.

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

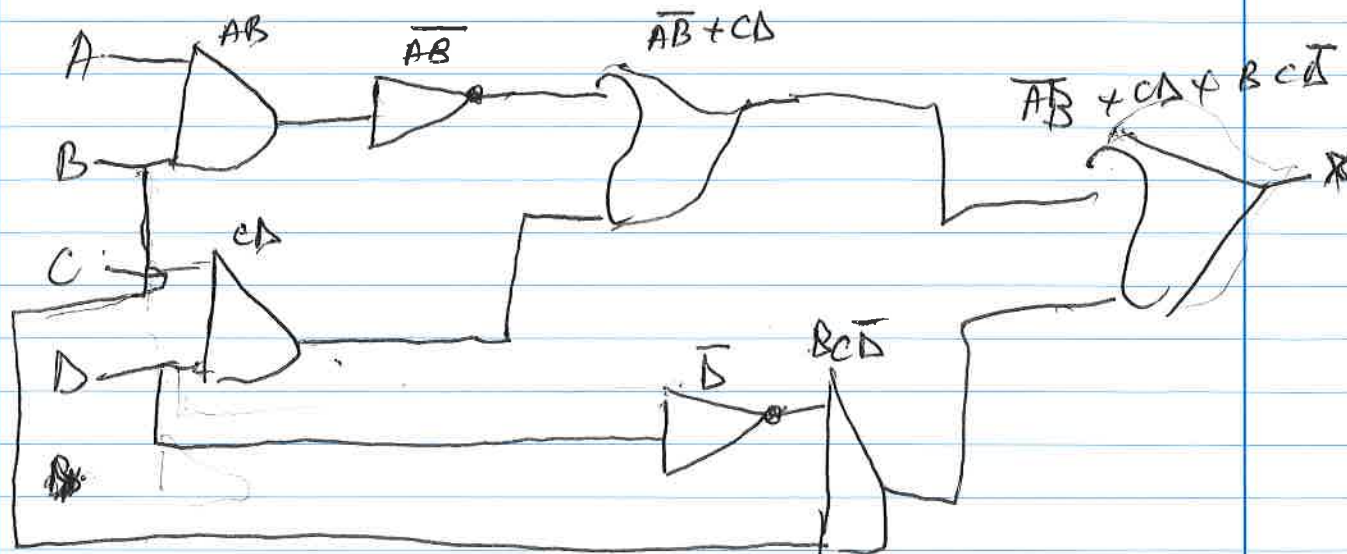
(See the other side for English version)

[illegible]

CYFENW:

ENW(AU) CYNTAF:

Llenwch, plygwrch a seliwrch
(gweler nodyn 2 isod)



BCD $\rightarrow$ D

$\frac{CD}{D} \rightarrow$

+BCD $\rightarrow$

$$A=10 \quad B=11 \quad C=12 \quad D=13 \quad E=14 \quad F=15$$

Question one

1. a) $(769)_{10} = (1100000001)_2$

769	2	
384	-1	24-0
192	-0	12-0
96	-0	6-0
48	-0	3-0

b) $(9A2)_{16} = 1-1$

~~b) $(1001)_{16} = 1-1$~~ b) $(9A2)_{16} = (100110100010)_2$

2) $(87)_{10} = (110111)_{2} = (167)_8$

87	2
43	51
21	-1
10	-1
5	-0
2	-1
1	-1

~~b) $(515)_{16} = (010111011001)_2$~~ b) $(515)_{16} = (010111011001)_2$

3) $(11101011001)_2 = (1651)_{10}$

5) $(50E)_{16} = (1294)_{10}$

$$5 \times 16^2 + 0 \times 16^1 + 14 \times 16^0 = 1294$$

$$5 \times 256 + 0 + 14 = 1294$$

4) a) $(4278)_{10} = (0116)_{16}$

4278	16
267	-4011
160	-4028
18	-3995
1	-0

b) $(670)_8 = (1083)_{16}$

670	8
83	-629
41	-

Question two

RAM → Memory ✓

Ethernet Port → CPU ✗

Microphone → Output Device ✗

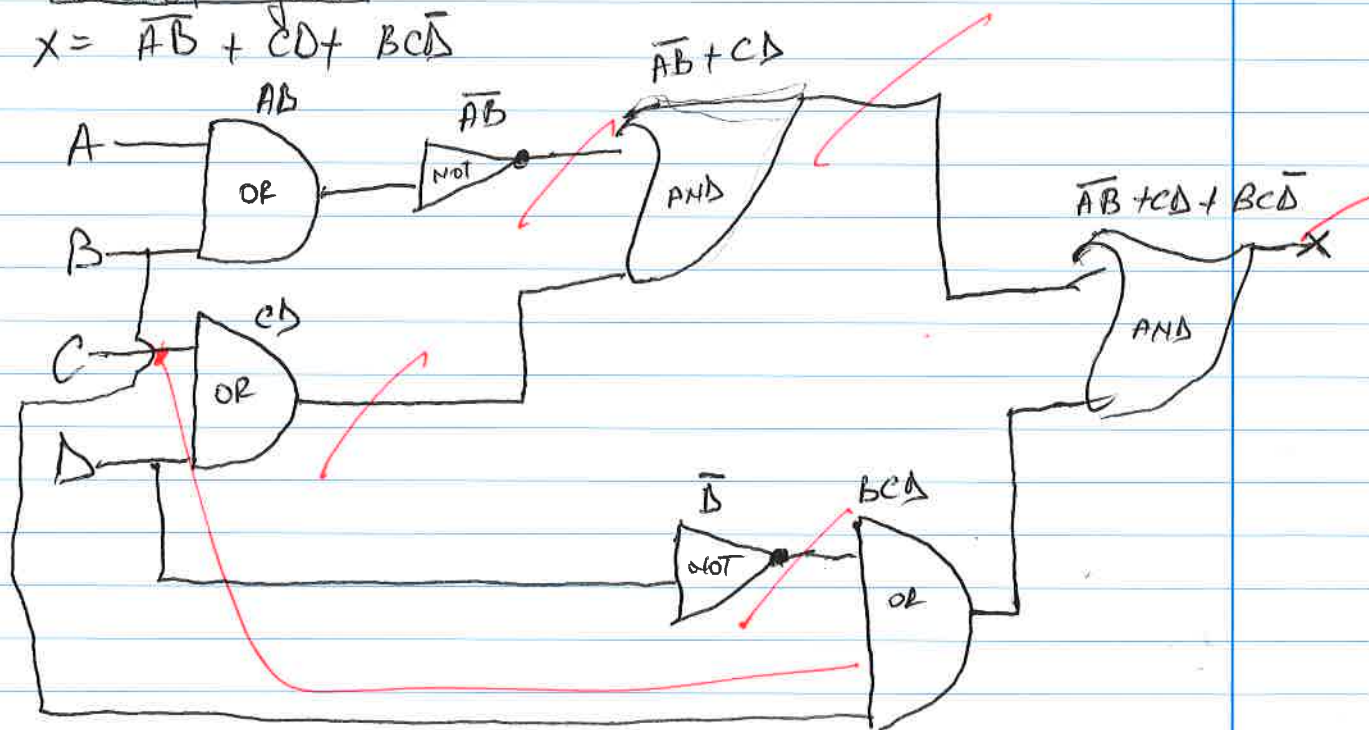
Flash Drive → Storage Device ✓

Gamepad → Input Device ✓

Question three

Question four

$$X = \overline{A}B + CD + B\overline{C}\overline{D}$$



Handwritten signature/initials

A	B	C	D	AB	$\overline{AB}$	CD	$\overline{AB} + CD$	$\overline{D}$	BC $\overline{D}$	$\overline{AB} + CD + BC\overline{D}$
0	0	0	0	0	1	0	1	1	0	0
1	1	1	0	1	0	0	0	1	1	1
0	0	1	1	0	1	1	1	0	0	0
1	1	0	0	1	0	0	0	1	0	0
0	1	0	1	0	1	0	1	0	0	1
0	0	0	1	0	1	0	1	1	1	0
1	1	1	0	1	0	0	0	1	0	0
1	0	1	0	0	1	1	1	0	0	0
1	1	1	1	1	0	0	0	1	1	1
0	1	1	0	0	1	0	1	0	0	0
1	0	0	1	1	0	0	0	0	0	0
0	0	1	1	0	1	1	1	1	0	0
0	0	0	1	0	1	0	1	1	1	0
0	0	1	0	0	1	0	1	1	0	1
0	1	0	0	0	1	0	1	1	0	0
1	1	0	1	1	0	0	0	0	0	0
1	0	0	1	1	0	0	0	0	0	0
0	0	0	0	0	1	1	1	1	0	0
0	1	0	0	0	1	0	1	1	0	0
1	0	0	0	0	1	0	1	1	0	0
1	1	0	0	1	0	0	0	0	0	0
0	0	0	0	0	1	1	1	1	0	0

BC

0	0
1	0
0	0
0	0
0	0
1	0
0	0
1	0
0	0
0	0
0	0
0	0

Question ~~five~~ give.

Raid 1 → Mirroring.

One advantage will be → the disk have the same memory

Disadvantage → more expensive

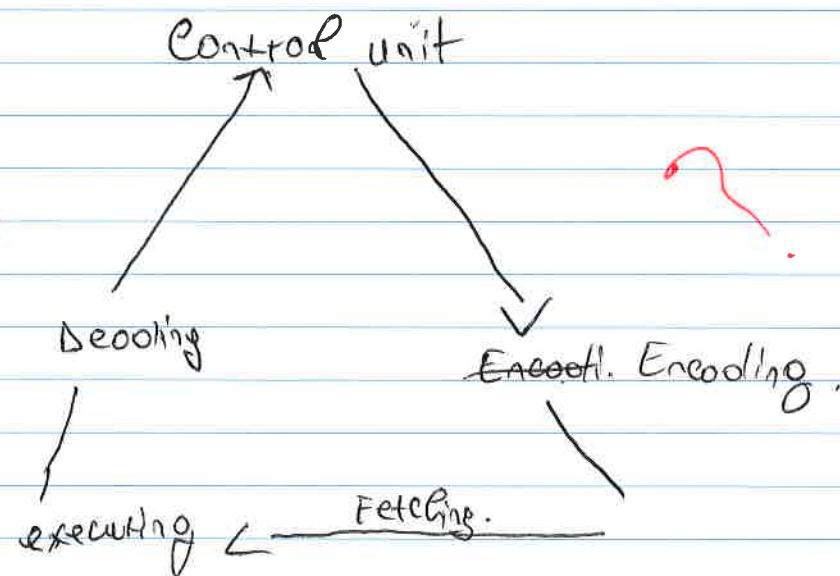
Benefits,

Advantage → Prevents data loss, more easy to stock the data

Characteristics → All your data is store on the other

Benefits → disks, redundancy parity information is well stocked

Question six



ALU → Calculate

CU → carry out the instruction to the CPU

Memory cache → store the memory RAM and ROM.

buses →

Clock. →

Question seven

Advantage	Disadvantage
More cheaper than Harvard	Small memory.
It's working	~~The speed is slower.~~
It's working	You can lose the data.
It's working	

More cheaper than Harvard
It's working
It's working

Roll 1 Noogram

Disks Mirroring

