



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	2244708
2	Title of Examination Paper	COMPUTER ARCHITECTURE
3	Module Code	ACCA4022
4	Date and Time of Examination	21/11/23 16:00 Am
5	Examination Venue	QUAY PLACE
6	Seat Number	C2
7	Number of Answer Books handed in	

[illegible]

(Gweler yr ochr arall am y fersiwn Cymraeg)



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

12 Tüdalen

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, plynwch et a'i selio i lawr (gan ddefnyddio'r label a ddarparwyd) i guddio'ch enw.

3. Rhaid i'r atebion fod mewn llawysgriften 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 dudalen newydd. Gwnewch unrhyw fras nodiadau yn y llyfr atebion a thynnu llinell drwyddynt.
6. Ni ddylid rhwngo 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 gwyllwyr/gwythwyr.
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 amgylchriadau.

Cyfanswm	
Ffethrwyth a cwestiynau a ymgeisydd gennydh	At Ddibenion y Swyddfa

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	

(See the other side for English version)

Llenwch, plygwch a seilwch
(gweler nodyn 2 isod)

CYFENN:

ENW(AU) CYNTAF:

Ques 1
 $(1769)_{10}$
 $\div 16$

11

1b. $(9A2)_{16}$
 $9 \times 16^2 + 10 \times 16^1 + 2 \times 16^0$
 $2304 + 160 + 2$
 $(2466)_{16}$
 $(187)_{10}$

(ii) $(87)_{10}$
 $87/8 = 10R9$

(iii) $(11101001)_2$
 $1 \times 2^9 + 1 \times 2^8 + 1 \times 2^7 + 0 \times 2^6 + 1 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$
 $512 + 256 + 128 + 0 + 32 + 0 + 8 + 0 + 0 + 1$
 $= (936)_{10}$

b) $(50E)_{16}$
 $5 \times 16^2 + 0 \times 16^1 + 14 \times 16^0$
 $1280 + 0 + 14$
 $(1294)_{10}$

(iv) a. $(4278)_{10}$
 $4278/16 = 267R6$
 $267/16 = 16R11$
 $11/16 = 0R11$
 $(103)_{10}$

QUES 2

(1) RAM

— B Memory Device ✓

(2) ETHERNET PORT

— ~~CODE~~ input/output device ✓

(3) MICROPHONE

— C D F input, output Communicat ✓

(4) FLASH DRIVE

— E Storage Device ✓

(5) GAME PAD

— C Input Device ✓

QUES 3

$$\frac{5000}{2 \times 2.5^9}$$

10.0006

10.0006

10.0006

QUES 4.

A.

B

C

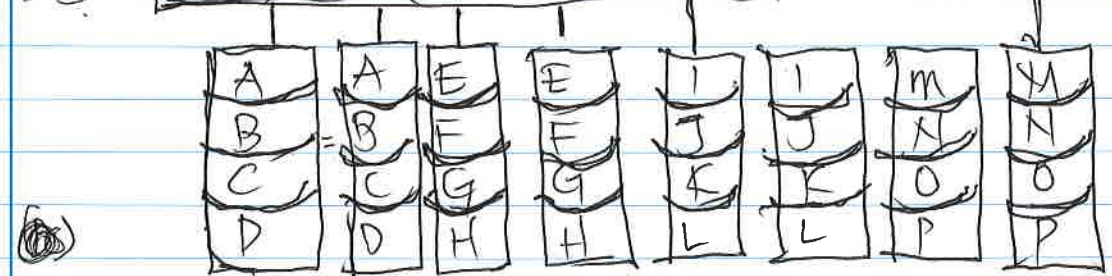
D

QUES 5

Characteristics of Raid 1

RAID 1 Diagram

5B



5 a) Two of the characteristics of Raid 1 is that
 (i) it has no parity information and (ii) information is split across two or more disks.

There is no redundancy tolerance.

Two benefits of Raid 1 is that

(i) it doesn't require too much effort or cost to install or setup.

(ii) Information is split across two or more disks

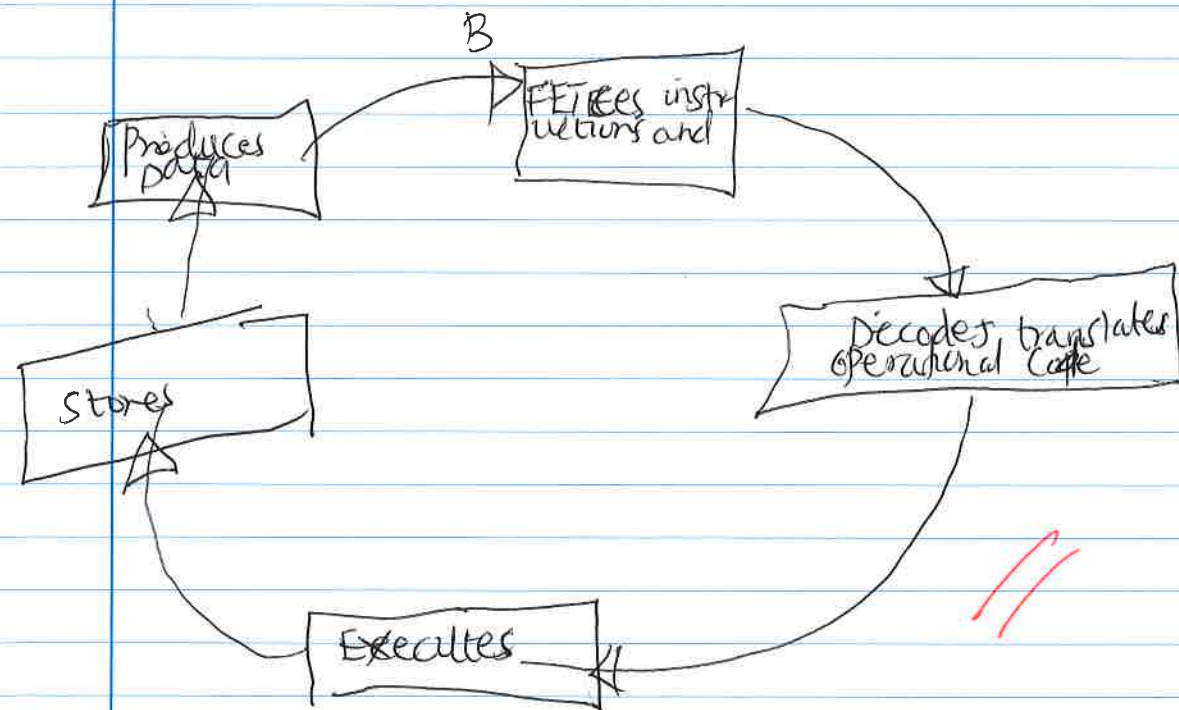
5.C-

1 advantage of RAID 1

↳ It has a high fault tolerance because when one disk is corrupted, data can be retrieved.

1 One disadvantage of RAID is that it is a bit more expensive to install.

Question 6. A
The operation function of a fetch cycle of a CPU is that it ~~fetches~~ fetches instructions, decodes it, executes it and then stores it.



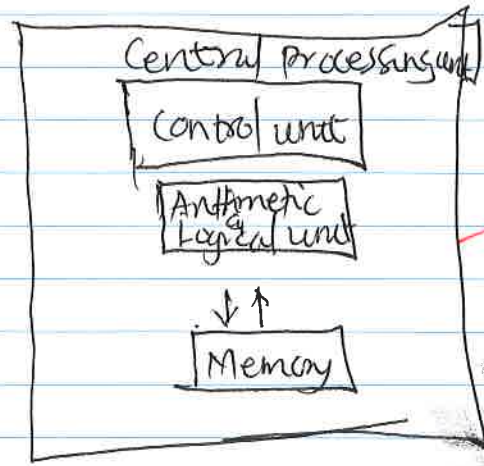
(6a) 6b

The operation function of a CPU goes through 4 main cycle steps. When instructions are sent to a PC, the CPU fetches the instructions and because computers only use binary to communicate and perform tasks, the FETCH stage gathers the instruction and sends an operational code.

At the ~~decoding~~ stage, the logical unit translates the ~~code~~ ^{operational} code. and The operational code is ~~stored~~ usually knows the next step

1
3

(7a)



- (7b) Advantages of a von NEUMAN architecture includes
- (i) It's more simpler and easier for manufacturers to produce
 - (ii) It's uses one block unit of so it's cheaper to produce.

(7c) Disadvantages of von Neuman Architecture

(i)