

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.**

(see note 2 below)

SURNAME: LONG

FORENAME(S): James
ALEXANDER

1	Student Number	139857
2	Title of Examination Paper	Computer architecture and networks
3	Module Code	ALCA4001M
4	Date and Time of Examination	10/05/2018 15:00 - 17:00
5	Examination Venue	Pembrokeshire College
6	Seat Number	

7	Number of Answer Books handed in	1
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List the numbers of the questions you have attempted	Office Use
1	25
2	13
3	21
4	8
Office Use	67

1024 512 256 128 64 32 16 8 4 2 1

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

a) 111000 ✓

3

1ab) 10100011 ✓

3

130 + 64 = 194 + 32 = 226 + 4 = 230 ✓

3

1ba) 230

1bb) 80 + 7 = 87 ×
87

0

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

1 = 1

160 + 7 167

2 = 2

3 = 3

4 = 4

16 × 8

5 = 5

6 = 6

32

7 = 7

64

128 + 11 = 139

8 = 8

128

9 = 9

A = 10

B = 11

128 64 32 16 8 4 2 1

C = 12

1 0 0 0 1 0 1 1

D = 13

1 0 1 0 0 1 1 1

E = 14

F = 15

1ca) 10001011 ✓

2

1cb) 10100111 ✓

2

$$16 \times 2 = 32 + 3 = 35$$

$$16 \times 14 = 224$$

$$224 + 15 = 239$$

1da) 35 ✓

3

1db) 239 ✓

3

8	4	2	1
0	0	00	
0	0	01	
0	0	10	
0	1	00	
1	0	00	
1	1	00	
1	0	11	
1	0	01	
1	1	10	
1	1	01	
1	0	11	
0	1	11	
0	1	01	
1	1	11	
0	1	10	

1e) 15 Unique Values x

0

$$3^{\text{rd}} \quad 800 \times 200 \times 3 \quad 480 \text{ KB}$$

$$160,000 \times 3 \quad 480,000 \text{ Bytes}$$

1f) 480,000 Bytes / 480 KB ✓

3

19) 3.2KB / 3200 bytes

1 character per byte ✓

~~80 Lines~~ 80 Characters ✓

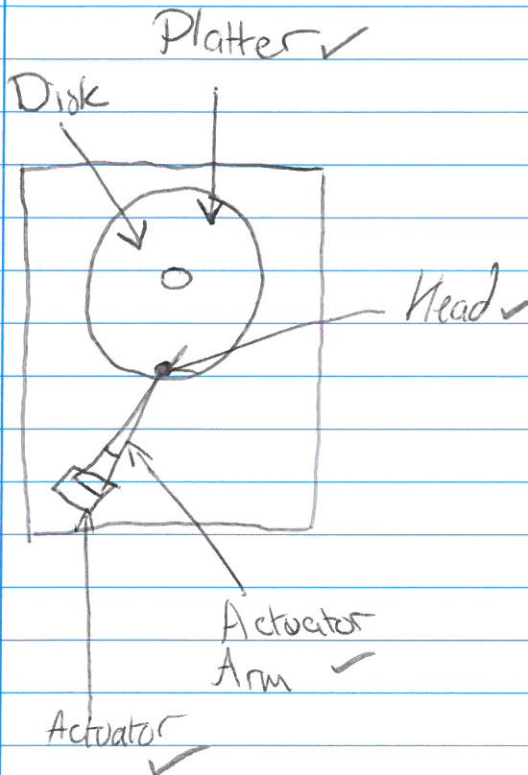
$$80 \times 40 = 3200 \checkmark$$

3

40 Lines ✓

3200 bytes ✓

2a)



The ~~platter~~ Disk will spin at speeds up to 17000 rpm and the actuator arm will move over the ~~platter~~ Disk and then read and write data to the magnetic disk

4

1

'Average access time' is the time it will take to read and/or write data to the Disk not read

0

'Sustained transfer speed' is a consistent speed in which data is being transferred from the hard drive. ✓

1

'Burst transfer speed' is how quickly data can be transferred in small bursts. X

0

2b) An SSD differs from a standard disk because there are no moving parts and it works more like a large USB stick, just using flash memory. ✓

An advantage of this ✓ is that the transfer speeds of an SSD are much quicker when compared with a normal HDD. Another advantage of an SSD is that it is more robust and strong than a conventional HDD because there are no moving parts which could break in the event of a PC being dropped. 4

One disadvantage of an SSD is that they are currently more expensive than a standard HDD. Along with this they have a much smaller storage space; for example, you can get a HDD with around 4TB of storage space compared with one of the largest SSD's being around 500GB. 2

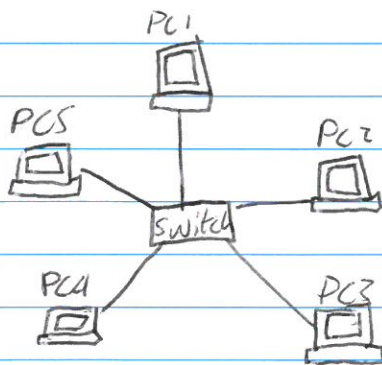
3)

- 1 Ease of Setup ✓
- 2 Frame ✓
- 3 Crossover twisted-pair ✓
- 4 128 ✓
- 5 200.165.200.215 ✓
- 6 Data ✓
- 7 Encapsulation x
- 8 Selecting the path to destination networks ✓
- 9 Spyware ✓
- 10 LAN Devices ✓
- 11 TCP x
- 12 Bandwidth : throughput ✓
- 13 Brute Force ✓
- 14 SSH x
- 15 NFC ✓
- 16 10.1.1.1 ✓
- 17 ~~Bandwidth~~; ~~throughput~~ Physical network Topology x
- 18 SMTP x

- 19 FF:FF:FF:FF:FF:FF: x
 20 DoS ✓
 21 UDP ✓
 22 Transport x
 23 Multicast ✓
 24 255.255.255.255 x
 25 Network Interface Card ✓
 26 Reference Model ✓
 27 HTTP Server ✓
 28 Internet ✓
 29 ~~email~~ email ✓
 30 ~~bandwidth management~~ default Gateway x

8

4a) A computer network is a way in which many PC's can connect and share data and information with each other ✓



3

4b) An advantage of peer to peer networking is that it is very cheap to set up. along with this it is very easy to set up. It is very useful if you want to connect a small amount of users together to share information.

3

Disadvantages of the network include if the main host PC is shut down or breaks then the whole network comes down with it. Along with this it is not very secure as anyone can join the network.

1

4c)

0

4d)

0

4e)

i)

128	64	32	16	8	4	2	1
1	1	0	0	0	0	0	0
1	0	1	0	1	0	0	0
0	0	0	1	1	0	1	0
0	0	1	0	0	1	1	0

11000000.10101000.00011010.00100110 ✓

1

ii)

128	64	32	16	8	4	2	1
1	0	1	0	1	1	0	0
1	1	0	0	1	0	1	0
0	1	0	0	1	1	1	0
1	1	1	1	1	1	1	0

10101100.11001010.01001110.11111110

0

0

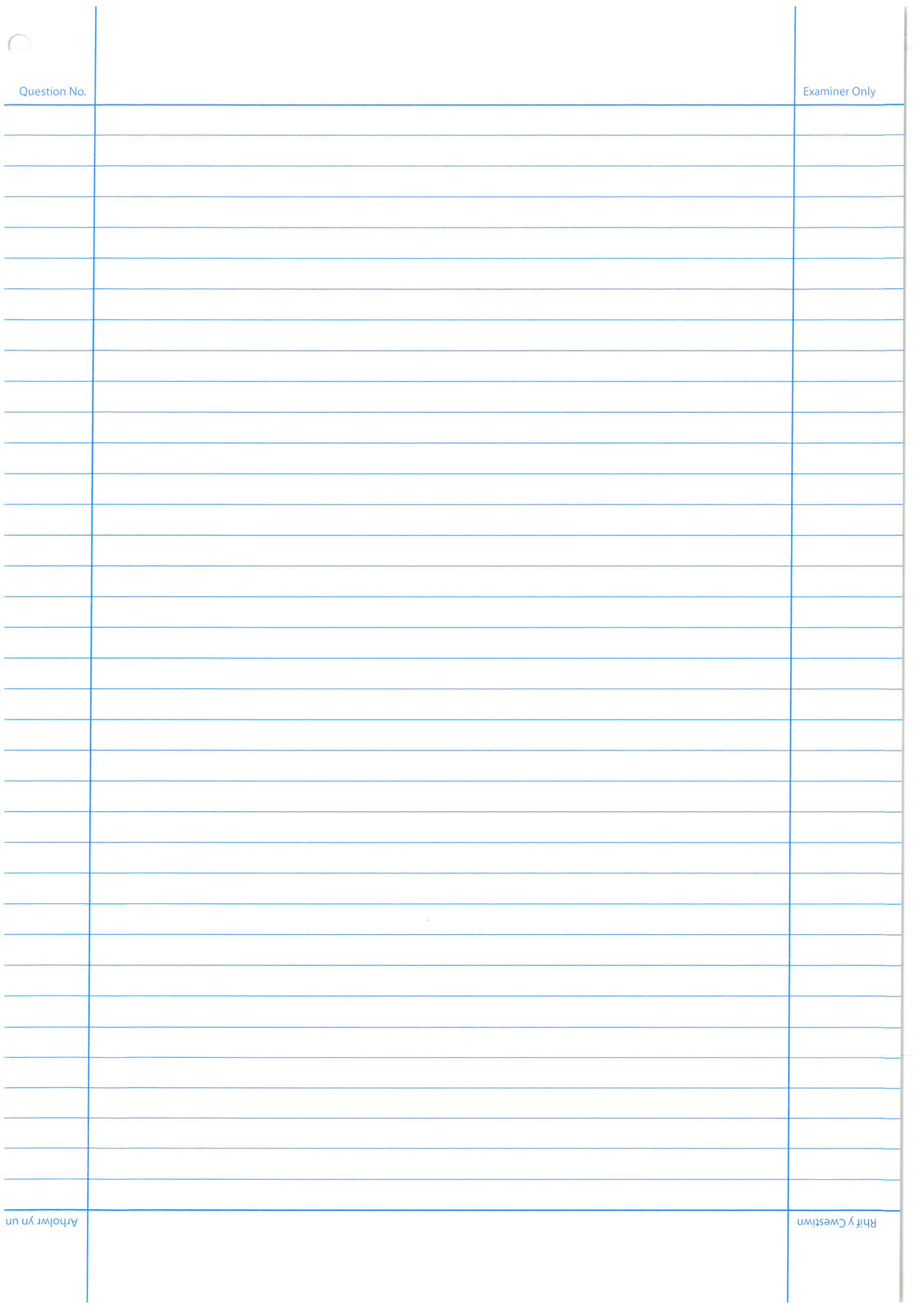


Question No.

Examiner Only

Arholwyr yn unig

Rhify Cwestiwn





Question No.

Examiner Only

Arholwr yn unig

Rhif y Cwestiwn

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

1. Rhaid i'r atebion fod mewn llawysgrifen ddarlennadwy. Gall yr Arholwyr naill ai anwybyddu sgrïpt annarllennadwy, neu drefnu iddi gael ei theipio a chael yr ymgeisydd i dalu.
2. Ysgrifennwch eich atebion mewn inc.
3. Dechreuwch bob ateb ar dudalen newydd. Gwnewch unrhyw fras nodiadau yn y llyfr atebion a thynnwch i'w llinell drwyddynt.
4. Ni ddylid rhwygo unrhyw ran o'r llyfr hwn; rhaid ei gyflwyno yn gyfan.
5. Os defnyddir mwy nag un llyfr, rhwymwch hwy gyda'i gilydd gan ddefnyddio'r tagiau sydd ar gael oddi wrth y gwyllwr/gwyllwyr.
6. 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.

CYFENN:

ENW(AU) CYNTAF:

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

[illegible]