

CYFENN:

ENW(AU) CYNTAF:

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 seilio i lawr (gan ddefnyddio'r label a ddarparwyd) i guddio'ch enw.

12 Tudalen

Llyfr Atebion Arholiadau

3. Rhaid i'r atebion fod mewn llawysgriften ddarlunadwy. Gall yr Arholwyr naill ai anwybyddu sgript annarllunadwy, 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 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 gwyllt/wr/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 amgylchiadau.

[illegible]

(See the other side for English version)



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

Examination Answer Books

12 Pages

Instructions to Candidates

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	1706594
2	Title of Examination Paper	COMPUTER ARCHITECTURE & NETWORKS
3	Module Code	ACCA4001
4	Date and Time of Examination	10/05/2018 15:00
5	Examination Venue	Townhill Gym
6	Seat Number	6015
7	Number of Answer Books handed in	1

(Gweler yr ochr arall am y fersiwn Cymraeg)

Complete, fold and seal
(see note 2 below)

SURNAME: Ali

FORENAME(S): ASGAR

[illegible]

Question ONE

a)

128 64 32 16 8 4 2 1

0 0 1 1 1 0 0 0 a)

1 0 1 0 0 0 1 1 b)

a)

a) $56 = 00111000$ in Binary ✓b) $163 = 10100011$ in Binary ✓

3 ✓

3 ✓

b)

b)

128 64 32 16 8 4 2 1

1 1 1 0 0 1 1 0 a)

0 1 0 1 0 0 1 1 b)

128 64

64 16

32 2

4 1

2

230 83 ✓

3 ✓

3 ✓

a) $11100110 = 230$ in base 10b) $10100011 = 83$ in base 10

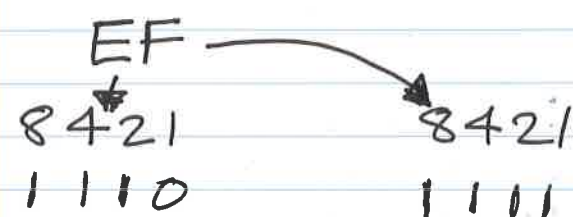
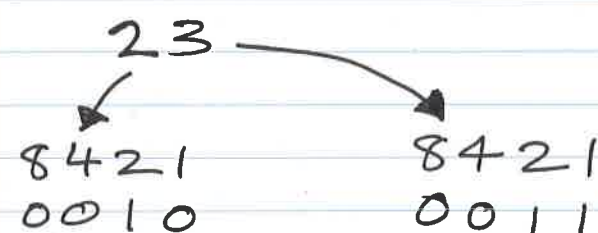
c)



a) 8B = ~~1000~~ 10001011 in Binary

b) A7 = 10100111 in Binary

d)



a) 23 = 00100011 in decimal

b) EF = 11101111 in decimal.

e)

8 4 2 1

A 4 Bit Number can have 16 Unique Values

f)

IF 1 Pixel = 1 bit,
 $200 * 800 = 160,000$ bits 160,000 bits

A. BMP file = ~~160,000~~ 160 Kb

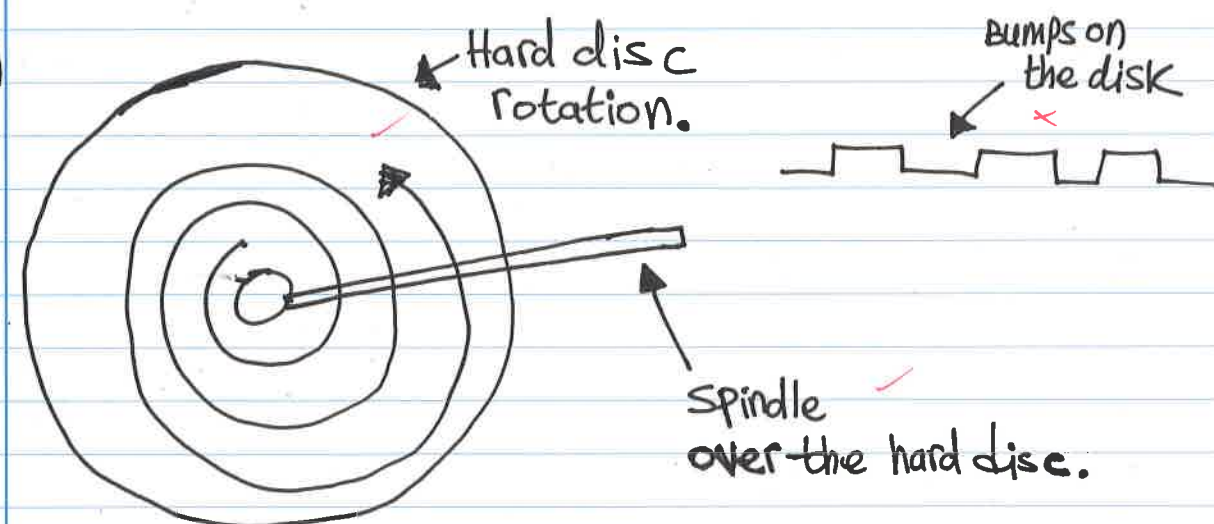
g)

1.44 MB.

1 word is Approximately 4 Bits in ASCII Standard
 1 ASCII character

QUESTION TWO

a)



The average access time of a typical
 7,200 revolution hard disc is 100 Mb/s.

Data on the drive is stored magnetically and will be accessed by the head of the mechanical spindle. The hard disc has grooves to store the data (similar to a DVD or CD) and a light will shine on the bumps and grooves to access the data.

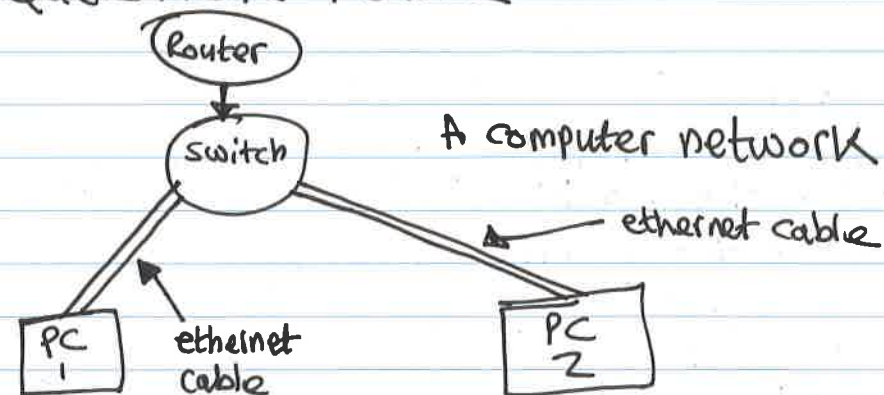
- b) A Solid state drive (SSD) does not have any moving parts. It uses flash storage (similar to on a USB stick), which will vary in number depending upon the size of the drive. Typical Sizes are currently between 64 GB – 2TB today, and may be internal or external drives. The read speed is a maximum value of 500 Mb/s. The advantages of a solid state drive is that it is more robust and less likely to fail compared to a mechanical hard drive, and information/data will be accessed faster at up to 500 Mb/s compared to a hard drive. A disadvantage of an SSD is that they cost more compared to a typical hard drive.

QUESTION THREE

- 1) ~~Easy~~ Ease of Setup
- 2) Physical network topology.
- 3) ~~cross-over twisted pair~~ cross-over-twisted-pair
- 4) 128
- 5) 255:255:255:255
- 6) Data-centre
7. ~~Internet~~
8. Selecting the path to the destination networks
9. Spyware
10. LAN Devices
11. ~~default gateway~~ HTTP Server
12. bandwidth; throughput
13. Brute force.
14. SMTP
15. NFC
16. 10.1.1.1
17. SSH
18. Frame
19. Default gateway
20. DoS
21. UDP
22. Encapsulation.
23. Multicast
24. FF:FF:FF:FF:FF:FF
25. ~~Physical topology~~ Network Interface Card (NIC)
26. Reference Model.
27. TCP
28. Internet
29. email
30. 200.165.200.215

QUESTION FOUR

a)



Above is a network of 2 PC's that are connected to a central Switch via ethernet cables. The switch in turn is connected to a router, which is the default gateway to the internet.

b)

Application
Session
Internet
Network
Data Link
Physical

OSI Reference Model.
7 Layers.

c) A network will have a router to connect to the internet

- A firewall for security
- A main switch
- A secondary switch for each floor / part of a building
- wireless Access Points
- A switch to connect to servers
- The PC's / Computers will be at the bottom Layer.

d)

i)

$$\begin{array}{r}
 128 \quad 64 \quad 32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1 \\
 1 \quad 1 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 \quad 0 = 192 \\
 1 \quad 0 \quad 1 \quad 0 \quad 1 \quad 0 \quad 0 \quad 0 = 168 \\
 0 \quad 0 \quad 0 \quad 1 \quad 1 \quad 0 \quad 1 \quad 0 = 26 \\
 0 \quad 0 \quad 1 \quad 0 \quad 0 \quad 1 \quad 1 \quad 0 = 38
 \end{array}$$

ii)

$$\begin{array}{r}
 128 \quad 64 \quad 32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1 \\
 1 \quad 0 \quad 1 \quad 0 \quad 1 \quad 1 \quad 0 \quad 0 = 172 \\
 1 \quad 1 \quad 0 \quad 0 \quad 1 \quad 0 \quad 0 \quad 0 = 200 \\
 0 \quad 1 \quad 0 \quad 0 \quad 1 \quad 1 \quad 1 \quad 0 = 78 \\
 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 0 \quad 1 = 254
 \end{array}$$

iii)

$$\begin{array}{r}
 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 0 = 255 \\
 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 0 = 255 \\
 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 1 \quad 0 = 255 \\
 1 \quad 1 \quad 1 \quad 1 \quad 0 \quad 1 \quad 0 \quad 0 = 240
 \end{array}$$

Question No.

Examiner Only

Arholwr yn unig

Rhif y Cwestiwn