



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 read the 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	1708241
2	Title of Examination Paper	Computer Systems
3	Module Code	M4X 01500
4	Date and Time of Examination	15/1/19 15:00
5	Examination Venue	Vivian Hall
6	Seat Number	G007
7	Number of Answer Books handed in	

Complete, fold and seal
(see note 2 below)

SURNAME:

Hughes

FORENAME(S):

John

List the numbers of the questions you have attempted	Office Use
1	8
2	8
3	10
5	10
6	5
7	8
Total	49/60

= 82%

(Gweler yr ochr arall am y fersiwn Cymraeg)

4096	0
2048	0
1024	0
512	0
256	0
128	0
64	0
32	0
16	0
8	0
4	0
2	0
1	0

1. a) 64 32 16 8 4 2 1
0 1 1 1

b) 1100 1 1 0 0 1 0 0

d) 1100100

e) d) 1000000000000000

2

2

2

2

8/10

2. The Von Neumann architecture has four main features;

Memory, Capable of storing both data and instructions for operation.

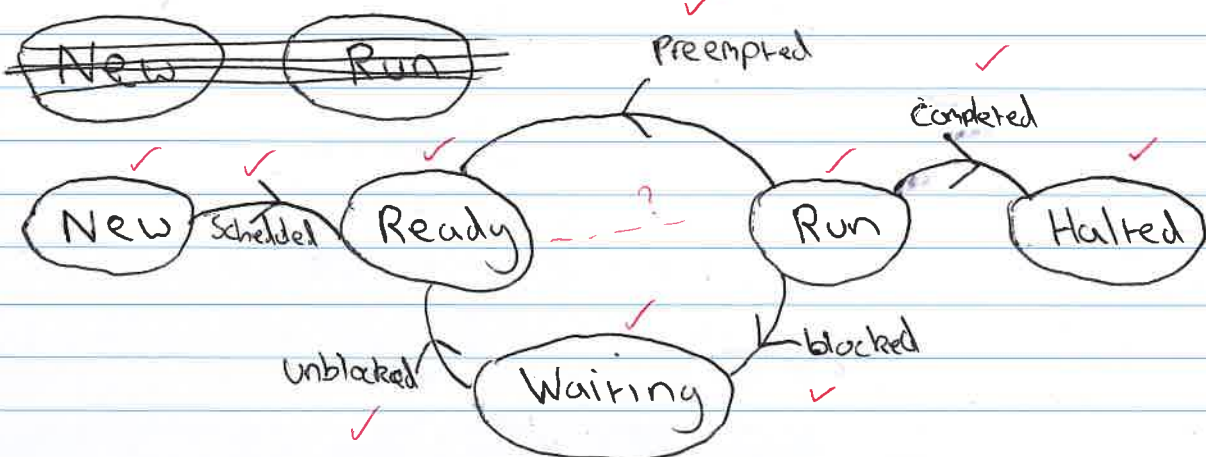
Arithmetic Logic Unit (ALU), Capable of performing mathematical operations in binary code.

Control Unit, for use of operations on data stored in memory.

Input/Output capabilities, managed by the control unit.

8/10

3.



10/10

5) The Principle of Locality has several main features. One feature is called temporal locality, which means a block of data that has been recently used is highly likely to be used again in the near future. Another feature is called Spatial Locality. This means data whose addresses are ~~used~~ ^{stored} near each other are likely to be used closely together in time. Cache memory has limited storage space, and these features are important in deciding which blocks of data are to be kept.

10
10

6) Providing an interface for the user
Managing the processor
Managing processes and software execution
Managing hardware such as CD-ROM, ROM, RAM

5
10

7) With compiled execution, a system will take full data, convert it to binary, run through it for errors and then execute the full process. ~~Interpreted approaches~~ ^{No} ~~This has~~
It is a fast way of executing large processes/instructions, but only if the data is free from bugs. Debugging can be challenging for the user. Interpreted approaches ~~are~~ ^{No} are different in that it reads and executes one line at a time. This approach is slower, but safer in terms of being more likely to run smoothly.

8
10