Computer Science

Part 1 : Download a Specification

Download the specification from the OCR website using the following link. You will need a printed copy which you can store in the front of your folder.

http://www.ocr.org.uk/qualifications/by-subject/computing/

Part 2 : Making Notes

In the first component you will find a section (1.2) on : Software and Software Development (see below).

1.2 Software and software development	
Types of software and the different methodologies used to develop software	
1.2.1 Operating Systems	(a) The need for, function and purpose of operating systems. (b) Memory Management (paging, segmentation and virtual memory). (c) Interrupts, the role of interrupts and Interrupt Service Routines (ISR), role within the Fetch-Decode-Execute Cycle. (d) Scheduling: round robin, first come first served, multi-level feedback queues, shortest job first and shortest remaining time. (e) Distributed, embedded, multi-tasking, multi-user and real time operating systems. (f) BIOS. (g) Device drivers. (h) Virtual machines, any instance where software is used to take on the function of a machine including executing intermediate code or running an operating system within another.

Using the internet ***complete research on; Operating Systems*** (covering points a – e in the table above).

These websites will help you to complete this task, as well as serve as useful revision websites throughout the course:

The topic starts by understanding the need for and function of operating systems:

- https://en.wikipedia.org/wiki/Operating_system
- http://www.teach-ict.com/as_as_computing/ocr/H447/F453/3_3_1/features_of_os/miniweb/

Investigate some different operating systems, (Windows, Linux, Mac OS)

- http://community.computingatschool.org.uk/resources/2775

Why use certain operating systems? Positive and negative experiences:

- http://community.computingatschool.org.uk/resources/2048

A video covering the basics of operating systems, looking into the different managers (Process, File, Device, Memory):

- https://www.youtube.com/watch?v=5AjReRMoG3Y

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Part 3 : Exam Style Questions

Q1 Intensive Care Units in hospitals are for patients in need of round the clock monitoring and support. Computerised systems can be used to monitor patients' vital signs (temperature, heart rate, blood pressure and breathing). They can then alert medical professionals to any significant changes. These systems usually run on an embedded, real-time, operating system.

(a) (i) State what is meant by the term real-time.

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……..[1]

(ii) Explain why a real-time operating system would be suitable for this purpose.

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……..[2]

(b) (i) Explain two advantages of this monitoring system having its operating system stored in ROM.

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……..[2]

(ii) The monitoring system also has RAM. Describe what happens to the contents of RAM and ROM when power to the monitoring system is removed.

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……..[2]

(c) The hospital would like to update the system so that it automatically delivers doses of certain drugs to patients based on the readings taken rather than leave delivery to medical staff.

"Discuss the ethical benefits and drawbacks of this approach, explaining whether you would recommend making this update." [9]

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Part 3 : Exam Style Questions

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Computer Science

EXTRA

If any of you are thinking of taking Computer Science at A-level then you will need to get your programming up to speed. At A-level 20% of the course is a programming project (where you are free to choose what you want to make / program, which we will look at in year 12).

Before you look at this in year 12 you need to get to know a little more about programming in python.

Please use the website: http://programarcadegames.com/ to firstly recap and consolidate your programming skills so far, by working through sections 1-4.

Then move on to learn how to program with sections:

5. Introduction to Graphics.
8. Introduction to Animation.
10. Controllers and Graphics.

Save the bits of code you write from this and bring them along on your enrolment day also.