



6.1 Hardware and software part 2

Name: _____

Class: _____

Date: _____

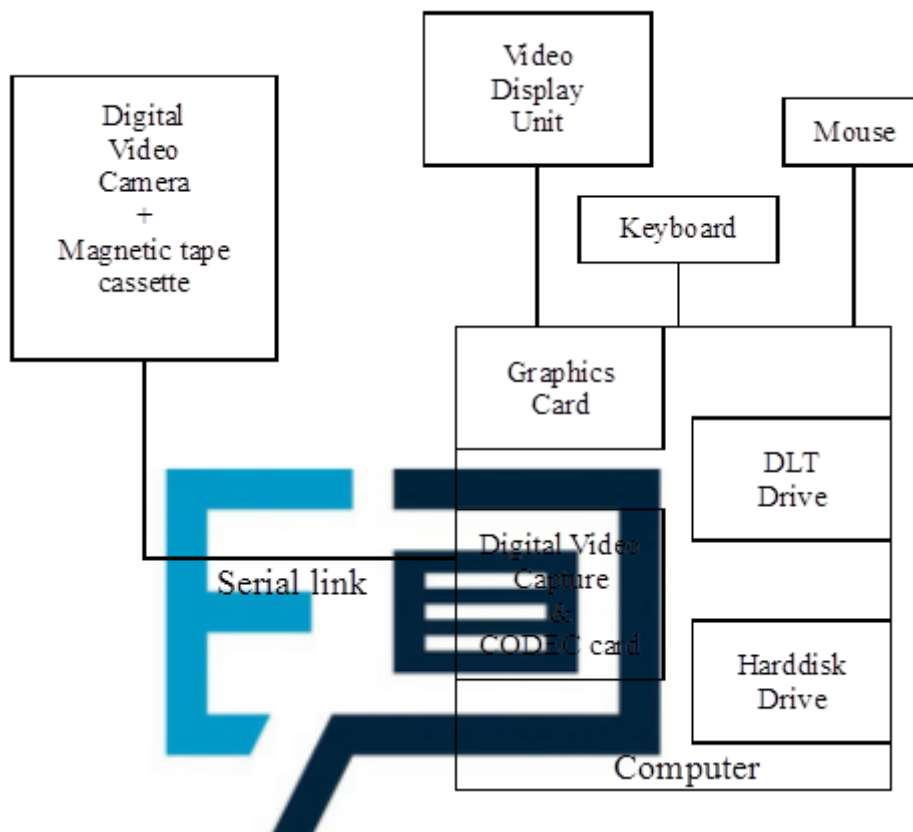
Time: **62 minutes**

Marks: **41 marks**

Comments:

Q1.

The diagram below shows part of a video editing computer system. The digital video camera records video and audio onto magnetic tape cassette using a digital format called **DV**. When the video camera is set to play mode the video and audio data are retrieved from the magnetic tape cassette at a rate of 3.6 Megabytes per second (MB/s). The storage capacity of a DV tape is 13 Gigabytes (GB).



The table below shows typical characteristics of four storage media, DLT magnetic tape, magnetic hard disk, Compact Disk Recordable, Digital Versatile Disk-Recordable.

Medium	Data Transfer Rate Megabytes per second	Storage Capacity Gigabytes
Digital Linear Tape (DLT)	6	40
Magnetic Hard Disk	100	30
CD-R	0.176	0.635
DVD-R	1.25	4.37

- (a) Which of the four media shown in the table is most suitable for storing the video and audio data stream obtained by the computer from the video camera in real time, without compression, so that the data can be accessed for editing purposes using random access? Justify your answer.

Medium: _____

Justification: _____

(2)

(b) A CODEC (Coder-Decoder) is often used to compress (and decompress) video and audio data.

(i) On some video-capture and editing systems the CODEC is entirely software-based whereas in others the CODEC is implemented in hardware and software on a plug-in board. Why is the hardware and software CODEC preferred to the software only CODEC?

(1)

(ii) Why must a CODEC be used if a movie from the video camera is to be stored on DVD-R?

(1)

(c) What purpose might the DLT drive be used for?

(1)

(Total 5 marks)

Q2. EXAM PAPERS PRACTICE

(a) What is meant by

(i) Hardware; _____

(1)

(ii) Software? _____

(1)

(b) Is an operating system hardware or software? _____
(1)

(c) Is a data bus hardware or software? _____
(1)
(Total 4 marks)

Q3.

The role of an operating system is often said to be twofold:

1. To provide a virtual machine.
2. To manage the resources of the computer.

(a) What is meant by “to provide a virtual machine”?

(1)

(b) Name **three** types of resource managed by the operating system.

1. _____
2. _____
3. _____

(3)

(Total 4 marks)

Q4.

A computer system consists of both *hardware and software*.

(a) What is meant by:

(i) hardware:

(1)

(ii) software?

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(1)

(b) One classification of software is *system software*.

(i) What is meant by system software?

(1)

(ii) Give **one** example of system software.

(1)

(iii) Name **one** other software classification.

(1)

- (iv) Give **one** example of this **type** of software. (Not a product name.)

(1)

(Total 6 marks)

Q5.

Newspapers and magazines are advertising many different specifications of personal computer systems. Such advertisements feature monitor, disk drives, processor, main memory and operating system.

- (a) What is the purpose of an operating system?

(1)

- (b) What is the function of:

- (i) the processor;

(1)

- (ii) main memory (Immediate Access Store)?

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(1)

- (c) The system bus in a computer system is made up of three buses. Name each bus and give **one** example of its use.

1. Name _____

(1)

Example _____

(1)

2. Name _____

(1)

Example _____

(1)

3. Name _____

(1)

Example_____

(1)

(Total 9 marks)

Q6.

- (a) Two classifications of software are System Software and Application Software. What is meant by:

(i) System Software; _____

(1)

(ii) Application Software? _____

(1)

- (b) Give an example of:

(i) System Software; _____

(ii) Application Software? _____

(1)

(1)

(Total 4 marks)

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Q7.

- (a) What is meant by the phrase *client-server operation*?

(2)

- (b) Explain the operation of *virtual memory*.

(4)
(Total 6 marks)

Q8.

- (a) What is meant by system software?

(1)

- (b) Give two examples of system software.

(2)
(Total 3 marks)



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