Topic 17 Hardware: Memory Hierarchy – Worksheet

1. Research and Present

a. Draw a diagram of the components of the memory hierarchy for a dual-core processor. Include all levels from internal general-purpose registers through local secondary storage to cloud storage (tertiary storage). As in your textbook (and in current common practice), use a *Harvard architecture* for the level 1 cache, and a *von Neumann* architecture for the remaining levels. Do not include other processor components such as the ALU or registers other than the general-purpose registers. **(10)**

b. What is the purpose of secondary storage? Give **two** examples of what is frequently stored in secondary storage. **(4)**

c. List the advantages and disadvantages of SRAM over DRAM **(4)**

Advantages:

Disadvantages:

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d. Describe the three ways memory can be accessed, and give an example of each. **(6)**

(i) .....

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(ii) .....

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(iii) .....

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e. Describe the three categories of secondary storage and give an example of each. **(6)**

(i) .....

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(ii) .....

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(iii) .....

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f. Give an example of digital ***convergence*** and say in why it is an example. **(3)**

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g. In Pearson A-Level IT, electrical devices are categorized into: computers, mobile phones, embedded systems, peripheral devices, and storage devices. Argue for or against a separate category for mobile phones. **(3)**

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