CROSS RIVER UNIVERSITY OF TECHNOLOGY, CALABAR
DEPARTMENT OF COMPUTER SCIENCE
FIRST SEMESTER EXAMINATION 2017/2018

CSC 3101: COMPUTER ARCHITECTURE **TIME: 2HRS**
INSTRUCTION: ANSWER ANY FOUR QUESTIONS

1. (a) Differentiate between Dynamic RAM and the Static RAM
   (b) Explain and show that the memory is made up of the address buffer and the data buffer
   (c) State the clear differences between a byte and a word

2. (a) Classify the different instruction formats of a 8086 processor.
   (b) What is CPU instruction cycle? Name the different types of system bus cycle.
   (c) Explain the different computer architecture classification schemes.

3. (a) What are the basic characteristics of memory devices?
   (b) What is an instruction set? Categorize them.
   (c) Illustrate and explain Flynn's system architecture classification.

4. (a) What do you understand by Direct Memory Access?
   (b) State the functions of ATS. Explain the different translation schemes.
   (c) State the functions of the BIOS

5. (a) Why are semiconductor devices called random access memories?
   (b) Illustrate and explain the memory hierarchy
   (c) What do you understand by stored program concept? What constitute a uniprocessor computer.

6. (a) What are the advantages of having the MMU on the CPU Chip?
   (b) Explain the family of Programmable ROMs
   (c) How can we balance the bandwidth between the CPU and the memory?

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CSC 3101: COMPUTER ARCHITECTURE **TIME: 2HRS**
INSTRUCTION: ANSWER ANY FOUR QUESTIONS

1. (a) Illustrate and explain a typical uniprocessor computer
   (b) What are memory systems?
   (c) List the six basic types of system bus cycles.

2. (a) What is an instruction set? Mention the categories of instructions
   (b) Explain the four types of instruction formats.

3. (a) What do you understand by the term memory in computer science.
   (b) At a fundamental level, computers are machines for flopping binary digits on and off. Comment on this statement.
   (c) Explain the concept of destructive read in magnetic core technology.

4. (a) What is a semi-conductor? (Discussion should include properties).
   (b) What was the contribution of semi-conductors during the generation of computers
   (c) To optimize memory usage and to achieve greater amount of efficiency, memory is organized in hierarchy. Comment on this statement and using an example show how this can be done.

5. (a) Discuss the four major storage level structures in memory hierarchy.
   (b) What is cache memory? Explain how it is used to minimize the 'space cost' in computer operation.
   (c) Explain what an interleaved memory is. State its advantage(s)

6. (a) Using suitable examples, explain what you understand by; (i) three address format (ii) two address format (iii) one-and-half address format 9iv) between accumulator operations
   (b) Distinguish between; (i) direct addressing and indirect addressing modes (ii) indexed addressing and relative addressing modes.