



DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
EDO UNIVERSITY IYAMHO, EDO STATE
FIRST SEMESTER 2017/2018 EXAMINATION
CMP 313: COMPUTER ARCHITECTURE

INSTRUCTIONS: ANSWER ANY FIVE QUESTIONS; TIME ALLOWED: 2 HOURS

1. In computer architecture, what are the criteria for separating computer storage into hierarchies (4 marks)
 - a) With the aid of a diagram explain the various hierarchies of computer storage (6 marks)
 - b) What is a memory address register? What is its function (4 marks)
2. With an example for each, differentiate between asynchronous and synchronous control (2 marks)
 - a. Explain the two categories of asynchronous control (2 marks)
 - b. Explain the XOR gate, show also the logic diagram and truth table (10 marks)
3. With the aid of a diagram, Explain the basic organization of a micro-programmed control unit (8 marks)
 - b. Show the two possible logic diagram representation of a NOR gate (4 marks)
4. What is a memory unit? How does the memory unit store binary information? (3marks)
 - c. With examples for each, explain the categories of computer memory (5 marks)
 - d. What is data structure? Explain in details (6 marks)
5. Mention and explain five operations that can be carried out on a data structure (10 marks)
 - a. With the aid of a block diagram explain combinational circuits (4 marks)
6. Show the block diagram and logic table for the following
 - a. Four bit parallel adder (7 marks)
 - b. A 2:1 Multiplexer (7 marks)
7. What is a decoder? Mention four types of decoders (5 marks)
 - c. Show the block diagram, Logic table and circuit diagram of a 2 to 4 line decoder (9 marks)