

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATIONS FOR BACHELOR OF EDUCATION IN
MATHEMATICS AND COMPUTER SCIENCE**

COSC 111: COMPUTER SYSTEMS AND ORGANIZATION

STREAMS: YEAR1 SEMESTER 1

TIME: 2 HOURS

DAY/DATE: THURSDAY 17/12/2020

8.30AM – 10.30 AM

SECTION A (COMPULSORY)

QUESTION 1 (COMPULSORY) [30 MARKS]

- a) Explain the task of the THREE busses found in a computer system. (6marks)
- b) Convert the following binary number to decimal 10000111001011_2 (4 marks)
- c) What are computer interrupts? Hence explain TWO interrupts that are likely to occur to a computer. (6marks)
- d) With aid of a diagram, explain THREE cabled network transmission medium (6marks)
- e) Describe the steps of turning OFF a computer that is connected to a UPS (4marks)
- f) Explain FOUR advantages of multiple bus path organization over single bus path in computers. (4marks)

SECTION B (Answer two question from this section)

QUESTION 2 [20 MARKS]

- a) With the help of a diagram, explain FOUR network topologies (8marks)
- b) Perform the following arithmetic in Hexadecimal $2D_{16}+1F_{16}+3A8_{16}$ (3marks)

- a) Differentiate between the following components of a computer -
 - i) MAR vs. MDR (3marks)
 - ii) AC vs. PC (3marks)
 - iii) Internal busses vs. external busses (3marks)

QUESTION 3 [20 MARKS]

- a) Using a block diagram, explain the parts of a CPU (5marks)
- b) Citing an example, explain THREE functions of general purpose registers. (6marks)
- c) Fifth Generation computers are considered superior compared to their earlier counterparts. Outline FOUR reasons that justifies that. (4marks)
- d) Explain the process of opening Microsoft word and Typing one paged document, then saving in the following location D://ken/assignment. (5marks)

QUESTION 4 [20 MARKS]

- a) With the help of a diagram, explain the Von Neumann Architecture (7marks)
- b) What is a computer port? Hence outline the functions of FOUR ports that are likely to be found in a laptop computer. (6marks)
- c) Add the following storage spaces giving your answer in Megabytes.
200Mb + 1Tb + 5 Gb (4marks)
- d) Name THREE processor brands that have been used in making computers (3marks)

QUESTION 5 [20 MARKS]

- a) The Program Counter (PC) and Instruction Register (IR) are used in fetching an instruction for execution. Outline the sequence of such event. (4marks)
- b) Explain the functions of SIX output devices. (6marks)
- c) Explain the task of FOUR Registers found in a computer system. (6marks)
- d) Explain TWO types of ROM memories found in a computer (4marks)

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