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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2020/2021 ACADEMIC YEAR
FIRST YEAR, SECOND SEMESTER EXAMINATION
FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE & MATHEMATICS)**

KCS 103 - INTRODUCTION TO COMPUTER ORGANIZATION

Date: 16th December, 2020

Time: 11.30am – 1.30pm

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Convert the following number system as follows:
- i) 10101101_2 to a hexadecimal number.
 - ii) $D5C3_{16}$ to a binary number.
 - iii) 344030_8 to a binary number.
 - iv) $E65_{16}$ to octal. (12 Marks)
- b) Explain the three operations that are being repeated by the control unit of a processor. (3 Marks)
- c) Differentiate between Computer Organization and Computer Architecture. (4 Marks)
- d) By use of a diagram, describe the user's view of a computer system. (5 Marks)
- e) By a use of a diagram, describe how the Von Neumann Computer Model and describe how works. (6 Marks)

QUESTION TWO (20 MARKS)

- a) Explain four reasons why programmers use of binary system in system computing. (4 Marks)
- b) Explain the three main functions played by the central processing unit of a computer system. (6 Marks)
- c) Explain what happens to a processor when an interruption of a signal is generated in any computer system. (10 Marks)

QUESTION THREE (20 MARKS)

- a) Briefly state and explain the two units of a processor in a computer system.
(4 Marks)
- b) What is the role of cache memory in a computer system? Explain its advantages.
(6 Marks)
- c) Briefly explain any five differences between microcontroller and microprocessor.
(10 Marks)

QUESTION FOUR (20 MARKS)

- a) By use of a diagram, name and explain different components of a typical block of a central processing unit.
(10 Marks)
- b) Explain clearly on how data is stored in a computer system.
(10 Marks)

QUESTION FIVE (20 MARKS)

- a) Explain any four characteristics of random access memory.
(4 Marks)
- b) What is a number system? State and explain the two major categories that classify the number systems.
(6 Marks)
- c) Draw and explain the hierarchy of languages in the architecture of programmer's view of a computer system.
(10 Marks)