CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

CHUKA / EMBU

FIRST YEAR EXAMINATION FOR THE AWARD OF CERTIFICATE IN COMPUTER SCIENCE

COSC 00101: COMPUTER SYSTEMS AND ORGANIZATION

STREAMS: CERT COMP SCI. Y1S1

TIME: 2 HOURS

DAY/DATE: THURSDAY 17/12/2020   **2.30 PM – 4.30PM**

INSTRUCTIONS:
- Answer question **ONE** and **TWO** other questions
- Do not write anything on the question paper
- This is a **closed book exam**, no reference materials are allowed in the examination room
- There will be **NO** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely.

SECTION A (ANSWER ALL QUESTIONS IN THIS SECTION)

Question one (30 marks)

a. Define the following terms in computer systems   [6 marks]
   i. EEPROM

ii. Quantum Computer

iii.Von-Neumann Architectures
b.EXPLAIN Index Sequential Access Method and how it is related to Sequential Access Method[4 mks]
c. What is the difference between L1,L2 and L3 in a CPU?   [3 marks]

d. Differentiate the following Language Processors   [6 marks]
  i.Compiler:
  ii.Assembler:
iii.Interpreter:

e. What is the Booting Process?, Briefly explain the two types of booting? [4 marks]

f. You are an ICT staff of an upcoming company and the management asks you to give the specification of a new computer system in order to procure the computers list & explain THREE specifications that you would recommend to be considered. [7 marks]

SECTION B (ANSWER ANY TWO QUESTIONS ONLY!! IN THIS SECTION)

Question two (20 marks)

a. Today's world is almost dependent on computers, discuss five computer applications in our modern society. [10 marks]

b. As a computer science student, why do you think studying the fundamentals of PCs is important to your future profession as a computer scientists? [6 marks]

c. List and Explain TWO Storage device management utilities [4 marks]

Question Three (20 marks)

a. Perform the following Number Systems Conversions:
  i. 985FDA base 16to base10 [3 marks]

  ii. 6.1_8 to decimal number [4 marks]

  iii.1's and 2's complements of the following binary:11010110. [3 marks]

b. List and Explain the FIVE Main Differences between Primary and Secondary Memory [10 marks]

Question Four (20 marks)

a. Define exascale computing [2 marks]

b. List 4 Examples of Exascale computing projects in the world and their country of origin [4 marks]

c. Select two of the examples you have listed above, and state the challenges Exascale computing is facing [4 marks]

d. Classify Computing by Generations [10 marks]

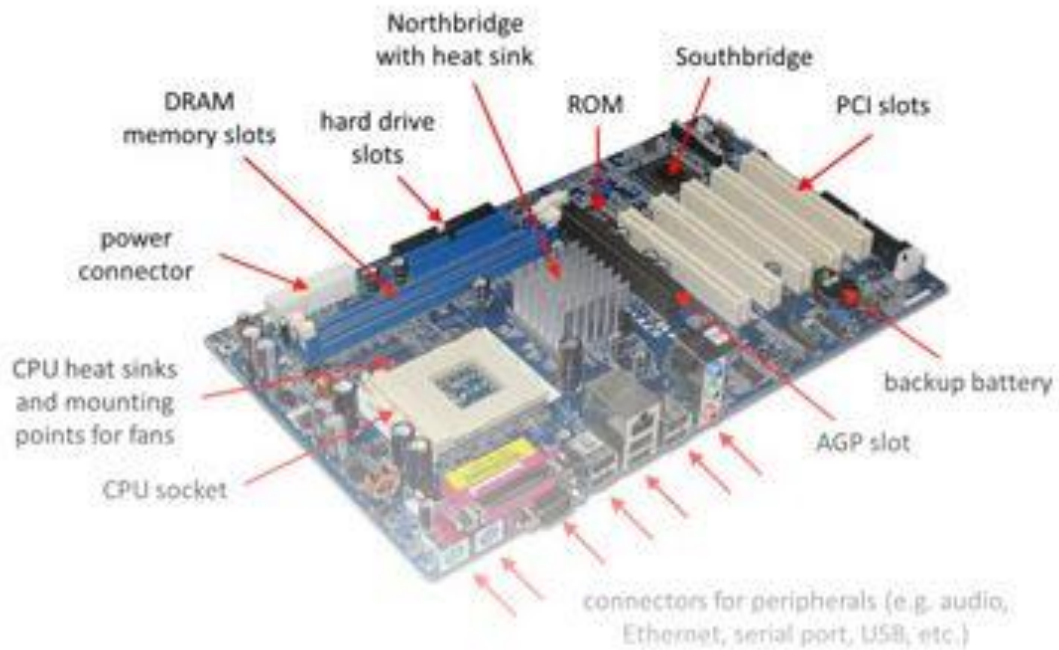## Question five [20 marks]

a. Distinguish between the following Terms:
 i. Random Access memory and Read Only memory   [3 marks]

ii. System software and application software   [3 marks]

iii. Cloud Computing and Edge Computing   [4 marks]
b. Below is a photograph of a typical PC motherboard

Explain the functions of the following parts   [10 marks]

      i.CPU socket –

      ii. Power connector-

      iii. PCI Slots-

      iv. AGP slot-

      v.Northbridge-

……………………………………………………………………………………………..