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ALUPE UNIVERSITY COLLEGE

...Bastion of Knowledge...

OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2020 /2021 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER REGULAR EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE (COMPUTER SCIENCE)

MAIN EXAMINATION

COURSE CODE: **COM 300**

COURSE TITLE: **COMPUTER ARCHITECTURE**

DATE: **12/03/2021**   **TIME: 9.00 AM – 12.00 PM**

INSTRUCTION TO CANDIDATES

- **SEE INSIDE**

THIS PAPER CONSISTS OF 3 PRINTED PAGES   **PLEASE TURN OVER**

REGULAR-MAIN EXAM

COM 300 COMPUTER ARCHITECTURE

STREAM: COM   **DURATION: 2 Hours**

INSTRUCTION TO CANDIDATES
Answer **ALL** questions from section A and any **THREE** from section B.

ANSWER ALL QUESTIONS.

SECTION A [24 MARKS]

QUESTION ONE [12 Marks]

a) Outline two main functions of a computer device.   [2 marks]
b) What do you understand by "soft wired machine"?   [2 marks]
c) What is the difference between computer architecture and computer

organization?   [4 marks]

d) With the aid of a diagram,describe the internal components of a

programmable machine   [4 marks]

QUESTION TWO [12 Marks]

a) Explain the performance limitation of the classical CPU internal

architecture.   [3 marks]

b) Define the term micro controllers hence outline at least three application

areas of microcontrollers in the modern world.   [5 marks]

c) Name the two major components of the Central Processing Unit

(processor) and briefly describe what each does.   [4 marks]

Answer any THREE questions]

SECTION B [36 Marks]

QUESTION THREE [12 Marks]

a) Perform the following conversions. Show all your working   [12Marks]

i. Convert decimal 586.75 to binary
ii. Convert Binary 10001111 to hexadecimal
iii. Convert decimal 45 to hexadecimal
iv. Convert decimal 75 to octal

QUESTION FOUR [12 Marks]

a) What is the main function of the computer memory? [2 marks]
b) Contrast between the two main types of secondary storage devices [4 marks]
c) Differentiate between cache memory and registers [2 Marks]
d) Describe each of the following types of ROM. [4 marks]

    i. Mask programmable ROM
    ii. Programmable ROM (PROM)
    iii. Erasable Programmable ROM (EPROM)
    iv. Electrically Erasable Programmable. ROM (EEPROM)

QUESTION FIVE [12 Marks]

a) The computer hard disk can be described as the data center of the computer system. Explain why. [3marks]

b) Explain the roles of the computer hard disk in relation to the following computer system capabilities. [6 Marks]

    i. System performance
    ii. System software support
    iii. System reliability

c) Mr. Max has a video editing job at his office; he wants to purchase another computer for his job. Advise him on the features he should consider while shopping for his computer. [3 Marks]

QUESTION SIX [12 MARKS]

a) Program translators convert source code into object code.
b) Distinguish between compiler and an interpreter stating advantages and disadvantages of each [6 marks]

c) Discuss the three operations carried out by the control unit of a computer [6 marks]

QUESTION SEVEN [12 MARKS]

a) Computers have evolved through many generations over the years.
b) State and explain the five generations the computers have evolved through. [6 marks]

c) Input and output devices usually connect to a PC via "ports".

List four different ports found on modern computers, together with

a type of device usually associated with each port.   [6 marks]

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