



PAN AFRICA CHRISTIAN UNIVERSITY

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

END OF SEMESTER EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: BSIT 206

COURSE TITLE: COMPUTER ORGANIZATION & ARCHITECTURE

CAMPUS: ROYSAMBU

EXAM DATE: MONDAY, 31ST JULY, 2023

TIME: 6:00PM-9:00PM

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other **THREE** questions in Section **B**.
- Write only your **student number** on the answer booklet provided.
- None programmable calculators permitted
- Calculators on phones, tablets and computers are **NOT** permitted in Theory Papers

SECTION A

(Answer ALL questions in this section)

QUESTION 1

- a) With the help of a well labelled diagram, explain Von Neumann computer architecture. **(4 Marks)**
- b) Data within a computer goes through several processes including input, storage, output, processing. Explain each process giving examples of devices used in each. **(6 Marks)**

QUESTION 2

- a) Differentiate between SRAM and DRAM and with reasons state which one is suitable for making cache memory. **(4 Marks)**
- b) The main role of the CPU is to execute instructions. Explain the steps involved during the execution of an instruction. **(6 Marks)**

QUESTION 3

- a) Compare RISC and CISC architecture. **(4 Marks)**
- b) Briefly explain the boot-up process and state how you can troubleshoot if the process was not successful. **(6 Marks)**

QUESTION 4

- a) State FOUR reasons why computer systems need secondary storage. **(4 Marks)**
- b) The history of computers can be categorized into various generations, which marked milestones in computer architecture. Explain the various computer generations. **(6 Marks)**

QUESTION 5

a) A LAN (Local Area Network) is often installed by a business to achieve either or both of the following objectives:

- i) Sharing of peripherals
- ii) Sharing of data

With reference to a typical business explain each of the objectives. **(4 Marks)**

b) Convert the following: 110010110111.1100111 to:

- (i) Octal **(3 Marks)**
- (ii) Decimal **(3 Marks)**

QUESTION 6

a) Explain the justification for parallelism in computer architecture. **(2 Marks)**

b) Briefly describe the three main Computer System Buses **(3 Marks)**

c) Describe the following types of CPU registers: **(5 Marks)**

- i. Accumulator
- ii. Program Counter (PC)
- iii. Memory Address Register (MAR)
- iv. Memory Data Register (MDR)
- v. Instruction Register (IR)

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