



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

**THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR
BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)**

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

SIT 311: COMPUTER ARCHITECTURE

DATE: 26/3/2021

TIME: 2.00-4.00 PM

INSTRUCTION: Answer Question ONE and any other TWO Question

QUESTION ONE (COMPULSORY)

- a) Draw a well diagram of CPU organization (6 marks)
- b) Discuss multiple interrupt handling strategies (6 marks)
- c) Compare and contrast cache and virtual memory (6 marks)
- d) List any six issues to be addressed in computer architecture (6 marks)
- e) Draw Von Neumann structure (6 marks)

QUESTION TWO

- a) Discuss how computer will process instruction $C=A+B$ (8 marks)
- b) Discuss bus arbitration (6 marks)
- c) Differentiate between: (6 marks)
 - i. Computer structure and computer architecture
 - ii. Computer organization and computer function
 - iii. Program routine and stored programmed

QUESTION THREE

- a) Discuss operating system support to computer organization and architecture (6 marks)
- b) Draw a diagram of main memory organization (6 marks)
- c) Discuss computer performance factors (8 marks)

QUESTION FOUR

- a) Describe any four number systems (9 marks)
- b) Using well labelled diagram of an I/O module (6 marks)
- c) Explain the four memory access methods (8 marks)

QUESTION FIVE

- a) Draw a labelled diagram of memory hierarchy including the kind of data transferred, variations in speed and capacity (8 marks)
- b) Perform binary arithmetic $2_{10} + A.3_{16} - 5_8$ (8 marks)
- c) List any four types of registers (4 marks)