NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
AUGUST SUPPLEMENTS EXAMINATIONS 2004

SUBJECT: **COMPUTER ARCHITECTURE**
CODE: SCS2102

INSTRUCTION TO CANDIDATES

a) Answer All questions in Section I.
b) Answer Any two questions in Section II

Time: 3 hours

SECTION A

QUESTION ONE

a) What is the rationale behind memory mapping [5]

b) State giving reasons whether memory map is hardware or software dependent. [5]

c) Is computer architecture and computer organization the same? Justify your answer [5]

d) Outline the importance of interrupts in an 8085 microprocessor. [5]

QUESTION TWO

Draw a well labeled internal functional block diagram of an 8085 microprocessor. [15]

QUESTION THREE

a) Distinguish between instruction cycle and machine cycle [5]

b) Calculate the time required to execute the following two instructions if the system uses the 8085 clock frequency. [5]

Instruction	*Number of T-States*
MOV C, B	5
JMP 2050	10

c) Describe in detail the addressing modes of any microprocessor you are familiar with. [5]

Section B

Answer Any two questions from this Section.

QUESTION FOUR

a) Explain the following key debouncing techniques.
   i) key debouncing using hardware [5]
   ii) key debouncing using software. [5]

   b) Compare and contrast RISC and CISC architectures [15]

QUESTION FIVE

Explain with the aid of diagrams how memory expansion and address space expansion can be achieved. [25]

QUESTION SIX

a) Outline the advantages and disadvantages of the following RAM types
   i) Window RAM (WRAM)
   ii) Video RAM (VRAM)
   iii) Static RAM(SRAM)
   iv) Dynamic RAM(DRAM)
   v) Extended Data Out DRAM(EDO DRAM)
   vi) Fast Page Mode Dynamic RAM(FPM DRAM)
   vii) Synchronous DRAM(SDRAM) [25]

QUESTION SEVEN

a) Outline the characteristics of Flash Memory and state the appropriate application of this memory type [8]
a) Describe in detail the main architectural components of a computer. [17]

END OF QUESTION PAPER

GOOD LUCK!