

UNIVERSITY OF ESWATINI

Faculty of Science and Engineering

Department of Computer Science

MAIN EXAMINATION

May 2019

Title of Paper: COMPUTER ORGANISATION AND ARCHITECTURE II

Course Code: CSC321 / CS341

Time Allowed: 3 Hours

Total Marks: 100

Instructions to Candidates:

*This Question Paper Consists of FIVE (5) Questions. Answer All the FIVE (5) Questions.
Marks are indicated in Square Brackets.*

NB: You are not allowed to open this examination paper until permission has been granted by the invigilator

QUESTION ONE**20 MARKS**

1. Explain any **FOUR** operating system services [4 Marks]
2. List **TWO** advantages and two disadvantages of Batch Processing [4 Marks]
3. In relation to operating system explain the following
 - a. Command line interface [2 Mark]
 - b. Batch based interface [2 Mark]
 - c. Graphical User Interface [2 Mark]
4. When a program is loaded into the memory and it becomes a process, it can be divided into **FOUR** sections. Explain these sections. [4 Marks]
5. Explain the difference between Compilers and Assemblers [2 Marks]

QUESTION TWO**20 MARKS**

1. With the help of a diagram Explain the Process Life Cycle [10 Marks]
2. Briefly explain the following
 - a. Long-Term Scheduler [2 Mark]
 - b. Short-Term Scheduler [2Mark]
 - c. Medium-Term Scheduler [2 Mark]
3. Explain the Difference between
 - a. True dependencies [2 Marks]
 - b. False dependencies [2 Marks]

QUESTION THREE**20 MARKS**

1. Explain the following terms:
 - a. Computer Architecture. [3 Marks]
 - b. Computer Organization [3 Marks]
2. In a shared memory system, explain **TWO** schemes to maintain cache-coherence. [4 Marks]
3. Define hit rate and miss rate. [2 Marks]
4. Explain the Following:
 - a. Latency. [2 Marks]
 - b. Buses [2 Marks]
5. Using any **TWO** examples explain what understand by data hazards. [4 Marks]

QUESTION FOUR**20 MARKS**

1. What makes a good ISA? List any **FOUR** [4 Marks]
2. Explain any **FOUR** different types of Processor Registers [4 Marks]
3. Discuss the two different kinds of branches giving examples where applicable:
 - a. Forward conditional branches [4 Marks]
 - b. Unconditional branches [4 Marks]
4. What is a stack? Explain the operations of a stack. [4 Marks]

QUESTION FIVE

20 MARKS

1. What is Cache Memory? Explain the difference between Primary Cache and Secondary Cache. [5 Marks]
2. What is the role of Instruction Register (IR) and Program Counter (PC)? [5 Marks]
3. What exactly is:
 - a. Direct mapping [2 Marks]
 - b. Associative mapping [2 Marks]
4. What do you mean by addressing modes? Explain various **TWO** addressing modes with the help of examples. [6 Marks]