GRETSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS

JANUARY – APRIL 2017 SEMESTER

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COURSE CODE: BSCS 301

COURSE TITLE: COMPUTER ORGANIZATION AND ARCHITECTURE

DATE: 4 APRIL 2017 **TIME: 3.00 PM – 6.00 PM**

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY.**
2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: All exam rooms are under CCTV surveillance during the examination period.

SECTION A: COMPULSORY

QUESTION ONE (40 MARKS)

a) Explain the Concept of Von Neuman Architecture Model as Used in Computer Architecture .

[5]

b) Using Relevant Examples,Describe The Following Concept .

i) Computer Architecture. [3]

ii) Computer Organization . [3]

c) Explain Any Three Types of Transfer Supported by Interconnection Structures. [3]

d) Discuss the Following Categories of System Bus .

i). Data Bus . [3]

ii).Address Bus . [3]

iii).Control Bus [2]

e) With the Help of a Well Labeled Diagram, Explain the Bus Interconnection Scheme. [6]

f).Elaborate on the Concept of RAID and Highlight Any Three Levels of RAID . [7]

SECTION B: ANSWER ANY OTHER THREE QUESTIONS

QUESTION TWO (20 MARKS)

a) Discuss the Major Functions of a Computer System. [6]

b) Explain Five Elements that Serve to Classify and Differentiate Buses in Computer Architecture. [10]

c) Explain Any Four Emerging Trends in Computer Architecture . [4]

QUESTION THREE (20 MARKS)

a) Explain the following Methods for Accessing Units of Data in Memory.

i) Sequential Access. [2]

ii) Direct Access. [2]

iii) Random Access. [2]

b) Differentiate between Access Time and Cycle Time as used in the Context of Memory Device . [3]

c) With an Aid of A Valid Example (s),Elaborate on the Following Error Detection And Correction Codes ,

i). Parity Bit Error Detection Methods . [3]

ii) .Hamming Error Code . [3]

d)Explain Any Three Physical Characteristics of Main Memory. [5]

QUESTION FOUR (20 MARKS)

a) Differentiate between RAID Level 1 and RAID Level 2 as Fault tolerance Options in terms of How Data is Organized and Replicated in the Storage Media . [4]

b) Discuss The Following Semi - Conductors Memory Types ,

i) EPROM . [2]

ii) PROM. [2]

iii) Flash Memory. [2]

c) Discuss the Five Major Functions for an I/O Module. [5]

d) Find the 2^s Compliment of the following Fixed Point Numbers.

i) 10100010 [3]

ii) 00110000 [3]

QUESTION FIVE (20 MARKS)

a). Write short Notes on the following Types of Memory.

i) RAM. [2]

ii) ROM [2]

iii) Registers [2]

iv) Cache. [2]

v) . Buffers [2]

b) Discuss Any Five Functions Of an Operating System. [5]

c) With the Help of a Well labeled Diagram ,Explain the Instruction Cycle State [5]

END OF EXAMINATION