Code No: R1631041 **R16** **SET - 1**

III B. Tech I Semester Supplementary Examinations, June/July-2022

COMPUTER ARCHITECTURE AND ORGANIZATION

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A (14 Marks)

1. a) Write a short note on bus structures used in computer system. [2M]
   b) Give example for left and right shift operations. [2M]
   c) With an example write about Indexed addressing. [2M]
   d) What is the use of Universal Serial bus in a computer system? [3M]
   e) What is the purpose of cache memory? [2M]
   f) Define Microcode. [3M]

PART –B (56 Marks)

2. a) What is System Software? Explain about the System Software of computers. [7M]
   b) Discuss briefly about the history of computer development. [7M]

3. a) An 8-bit register contains the binary value 10011100. What is the register value after arithmetic shift right? Starting from the initial number 10011100, determine the register value after an arithmetic shift left, and state whether there is an overflow? [7M]
   b) What is register transfer notation? Write and explain these notations to three-address, two-address, single address and zero-address instruction types. [7M]

4. What is purpose of Branch Instructions? List out Branch Instructions and write any example program using these Instructions. [14M]

5. a) Explain the importance of handshake control for data transfer in asynchronous bus? [7M]
   b) Explain typical read operation with various data transfer signals on the PCI bus. [7M]
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6. a) What are the possible configurations of ROM? Explain with advantages and disadvantages. [7M]
   b) Discuss briefly how large storage can be implemented with optical disks. [7M]

7. a) Explain, how address sequencing is done in a micro programmed control unit? [7M]
   b) What are the microinstructions needed for the fetch routine? Explain. [7M]

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