

S-779

Total Pages : 5

Roll No. -----

MCS-602

Computer System Architecture

Master of Computer Application (MCA)

3rd Semester, Examination 2022(Dec.)

Time: 2 Hours

Max. Marks: 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section – A

(Long Answer – type questions)

Note: Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

[2 x 19 = 38]

P.T.O.

Q.1. Answer the following:

- a. Define computer architecture.
- b. Explain the various units of a stored program computer?
- c. What is data bus and address bus?
- d. What is a loop buffer? How loop buffer is used to handle the branching in pipeline processor?

Q.2. Answer the following:

- a. How to multiply a number by 2 using shift operations, give an example.
- b. Demonstrate multiplication of two-binary numbers with the help of an example. Design an arithmetic circuit to perform this multiplication.

Q.3. Answer the following:

- a. Define cache memory. Why it is used?
- b. What is word addressable machines?
- c. What is a binary storage cell? Explain.
- d. What is word line?
- e. Explain the difference between SRAM Versus DRAM.

Q.4. Answer the following:

- a. What is page fault? How it is handled?
- b. What is TBL?
- c. Explain the virtual memory translation and TLB with necessary diagram.

Q.5. Answer the following:

- a. Describe Instruction cycle state diagram.
- b. Explain Microprogram Sequencing.
- c. Explain the DMA module and its function.
- d. What are the distinguishing characteristics of RISC organization?

Section – B

(Short-answer-type questions)

Note: Section 'B' contains Eight (08) short-answer-type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

[4 x 8 = 32]

P.T.O.

- Q.1. Answer the following:
- a. Explain Von Neumann Stored Program Concept.
 - b. How the capacity of a memory module is specified?
- Q.2. What are the three possible approaches to represent signed integers? Explain each of them in detail.
- Q.3. With suitable block diagram explain Binary multiplier.
- Q.4. Answer the following:
- a. What is principle of locality? Explain.
 - b. What is the difference between write back and write through method?
- Q.5. Define partitioning of memory space. How many types of partitioning are possible? Explain.
- Q.6. Discuss about different types of addressing modes.

Q.7. What is a system bus? Why it is required? What are the various components of a system bus?

Q.8. Define the term seek time, rotational delay and access time.
