

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CSE / IT / 3D Animation & Graphics Engg.) (Sem.-3)

COMPUTER ARCHITECTURE

Subject Code : BTCS-301

M.Code : 56591

Date of Examination: 12-01-2023

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Answer Briefly :

- a) Define Computer architecture.
- b) Differentiate between Logical and Physical addresses.
- c) Differentiate between Direct and indirect instruction modes.
- d) Differentiate between Arithmetic Shift Left and Arithmetic Shift Right.
- e) What is a microprogram sequencer?
- f) What is instruction-level parallelism?
- g) Why does increasing the capacity of cache tend to increase its hit rate?
- h) What do you mean by memory hierarchy?
- i) How many 128x8 RAM chips are needed to provide memory capacity of 2048 bytes?
- j) Differentiate between isolated I/O and memory-mapped I/O.

SECTION-B

2. How is Virtual Memory different from Cache memory?
3. What are Interrupts? Explain different types of interrupts.
4. Give the hardware realization of 4-bit arithmetic circuit capable of doing addition, subtraction, increment and decrement.
5. Formulate a six-segment instruction pipeline for a computer. Specify the operations to be performed in each pipeline.
6. What are the various addressing modes? Give examples.

SECTION-C

7. Explain the difference between hardwired control and micro-programmed control. Is it possible to have a hardwired control associated with a control memory?
8. Give the hardware organization of associative memory. Why associative memory is faster than other memories. Deduce the logic equation used to find the match in the associative memory.
9. What do you mean by initialization of DMA controller? How DMA controller works? Explain with suitable block diagram.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.