

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID :110505

Roll No.

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B.Tech.

(SEM. V) THEORY EXAMINATION, 2015-16

COMPUTER ARCHITECTURE

Time:3 hours]

[Maximum Marks:100

Section-A

Note: Attempt all parts. All parts carry equal marks. Write answer of each part in short. $2 \times 10 = 20$

- Q.1
- (a) What is the main advantage of RTL?
 - (b) Define control word.
 - (c) Give block diagram of micro program sequencer.
 - (d) Why are read and write control lines in a DMA controller bidirectional?
 - (e) List two important instruction set design issues.
 - (f) List the two techniques used for grouping the control signals.
 - (g) Which of L1 and L2 cache is faster?
 - (h) What is the use of Modem in synchronous communication?
 - (i) What is CAM?

- (j) List three types of Control Signals.

Section-B

Note: Attempt any five questions from this section.

10×5=20

- Q2. Discuss the advantages and disadvantages of **polling and daisy chaining bus arbitration schemes**.
- Q3. Briefly define the following terms.
- (i) Micro operation
 - (ii) Micro instruction
 - (iii) Micro program
 - (iv) Micro code
 - (v) Control memory
- Q4. What do you mean by CAM? Explain its major characteristics.
- Q5. Explain various types of processor organization.
- Q6. Explain the sequence that takes place when an interrupt occurs.
- Q7. A computer uses RAM chips of 1024*1 capacity.
- (i) How many chips are needed and how should their address lines be connected to provide a memory capacity of 1024*8?
 - (ii) How many chip are needed to provide a memory capacity of 16KB? Explain in words how the chips are to be connected to the address bus.

- Q8. A ROM chip of 1024*8 has four select inputs and operates from a 5 volt power supply. How many pins are needed for the IC package? Draw a block diagram and label all input and output terminals in the ROM.
- Q9. (i) What are the differences between hardwired and micro-programmed control unit?
- (ii) What is RISC? Explain its various characteristics.

Section-C

Note: Attempt any two questions from this section.

(15×2=30)

- Q10. (i) What is the distinction between spatial locality and temporal locality?
- (ii) Show the multiplication process using Booth's Algorithm when the following numbers are multiplied:
- (−13) by (+8)
- Q11. Why Input Output interface is required? Describe in detail.
- Q12. Differentiate among:
- (i) Strobe control and Handshaking asynchronous data transfer modes.
 - (ii) Processor and IOP.

- (iii) Synchronous and asynchronous transmission.
- (iv) Character oriented and Bit oriented protocols.
- (v) DMA and Interrupt initiated I/O techniques.

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