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

Paper ID :110505 Roll No. | | | | | | | | | |

B.Tech.

(SEM. V) THEORY EXAMINATION, 2015-16

COMPUTER ARCHITECTURE

Time:3 hours] [MaximumMarks:100

Section-A

Note: Attempt all parts. All parts carry equal marks. Write answer of each part in short. 2×10=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 chaning 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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