Code: 9A05406

1

II B. Tech II Semester (R09) Regular & Supplementary Examinations, April/May 2012

COMPUTER ORGANIZATION

(Common to ECC & CSE)

Time: 3 hours Max Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 What is a digital computer? Discuss briefly on various types of computers.

2 Convert the following numerical expression into reverse polish notation and show the stack operations for evaluating the numerical result: (3+4)*(10*(2+6) +8).

3 (a) Explain micro program sequencer.
(b) Distinguish between micro programmed control and hardwired control.

4 (a) Perform the following arithmetic subtractions using 9's and 10's complement representation: i) 436-291 ii) 962-354
(b) With the help of diagram explain parallel decimal addition.

5 List and explain the different characteristics of memory system.

6 (a) Discuss the USB transfer types for different applications.
(b) What is USB controller? Explain the elements of USB controller.

7 (a) Explain the function of arithmetic pipeline. List out the sub operations to be performed to perform the floating point addition/subtraction.
(b) Let us consider that we have to add number X and Y. Where $X = m_A \times 2^{e}_{A} = 0.11110X2^{3}$ $Y = m_B \times 2^{e}_{B} = 0.11101X2^{4}$.

8 (a) Explain the 8X8 Omega switching network with a neat sketch.
(b) What is Synchronization?

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1 What are the advantages and disadvantages of hardwired and micro programmed control?

2 (a) Explain how floating point division is done.
(b) Perform the following divide operations:
(i) 110/111.
(ii) 0011/1011.

3 What are functional units? Discuss on basic functional units of a computer.

4 (a) Explain about various arithmetic micro operations.
(b) Show the block diagram that executes the statement T: A←B, B←A.

5 (a) Write detailed notes on compact disk with Laser beam control mechanism and draw a neat sketch.
(b) Explain the disadvantage of the magnetic tape in being used as a sequential access device.

6 (a) Discuss the various I/O interfacing techniques.
(b) Discuss the programmed I/O.

7 (a) How MIMD computer differs from SISD computer?
(b) Discuss on the handler classification of pipelined processors.

8 (a) Explain the inter processor communication using message passing.
(b) How does message transfer system function?

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3

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1	(a)	Differentiate between multiprocessors and multi computers.
	(b)	What is parity bit? Explain even and odd parity bit generation and design 3 bit odd parity generator and checker.
2	(a)	Explain how data flows during fetch and interrupts cycles.
	(b)	Explain the operation of 4-bit binary adder with example.
3		Draw a block diagram of a control memory with associated hard work for finding out next instruction address and mention the need of some bits of current microinstruction to generate address of the next microinstruction.
4		With the help of an example explain about addition and subtraction using signed 2's complement notation. Also provide its hardware implementation.
5	(a)	List and explain the different formats of DVDs.
	(b)	Describe in detail the different capacities of DVDs.
6	(a)	Compare memory mapped I/O and I/O mapped I/O.
	(b)	What is programmed I/O?
7	(a)	Discuss the concept of parallel processing.
	(b)	Explain the functioning of Single instruction stream single data stream.
8	(a)	Write about Hypercube interconnection.
	(b)	Define bus and protocol.

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4

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COMPUTER ORGANIZATION

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Answer any FIVE questions
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*****

1 (a) Give the operational concepts of a digital computer.
(b) Discuss the interconnection structure of a computer.

2 (a) Compare CISC and RISC computers.
(b) Explain zero address, one address, two addresses and three address instructions with examples.

3 (a) Support or oppose the statement. If we want to add a new machine language instruction to a processors instruction set, simply write a C program and compile and store the resultant code in control memory.
(b) Why do we need subroutine register in a control unit? Explain.

4 What are the essential steps required to perform addition and subtraction operation on floating point numbers? Explain in detail with help of a flow chart.

5 (a) Explain with help of a sketch the internal structure of 64X1 DRAM.
(b) Describe in detail the timing diagram of the READ and WRITE cycle of dynamic RAM.

6 (a) What is meant by interrupt nesting? What is the necessity of assigning priorities to the interrupts?
(b) Explain the interrupt priority system using daisy chain.

7 (a) What are conflicts?
(b) Explain resource conflicts in the instruction pipelining.

8 (a) What is a computer module? Explain the function of message transfer system.
(b) Explain in detail the loosely coupled system.

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