Code No: V0522





II B. Tech II Semester, Supplementary Examinations, April/May – 2013 COMPUTER ORGANIZATION

(Com. to CSE, IT, ECC)

Time: 3 hours

Max. Marks: 80

Answer any **FIVE** Questions All Questions carry **Equal** Marks

- 1. a) Give a good account of Fixed Point and Floating point representation of data in computer with examples.
 - b) Give a detailed account of how a digital computer is organized and explain its functions clearly.
- 2. a) Explain register transfer process and control function with suitable examples.
 - b) Explain the concept of three state Bus Buffers.
- 3. a) Differentiate between Hardwired control and micro programmed control.
 - b) Formulate a mapping procedure that provides eight consecutive micro instructions for each routine. The operation code has 7 bits and control memory has 2048 words.
- 4. a) How many bits are needed to store the result of addition, subtraction, multiplication and division of two n-bit unsigned numbers? Explain briefly.
 - b) What is overflow and underflow? What is the reason? If the computer is considered as infinite system do we still these problems?
- 5. a) Describe about locality of reference in detail.b) Explain the memory hierarchy in detail?
- 6. Explain the followinga) Asynchronous serial transferb) Asynchronous Communication Interface.
- 7. Write note ona) Pipeliningb) Array Processors
- 8. Explain Inter processor communication and synchronization in Multiprocessors.

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1. a) Explain about the functioning of a digital Computer

b) Explain the role of system software in the context of a digital Computer,

- Explain the organization of 4 bit arithmetic circuit with a schematic. Illustrate its functioning 2. anker with an example.
- 3. Discuss about
 - a) Micro Operations
 - b) Micro Instructions
 - c) Address sequence
- Explain a Hardware algorithm for 'Divide' operation with a neat flow chart. 4.
- 5. Explain briefly about
 - a) Demand Paging
 - b) Segmentation
- Give a detailed account of Direct Memory Access(DMA) 6.
- Explain about instruction Hazards in pipeline. 7.
- Explain Inter connection structures in Multiprocessors. 8.

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1. a) Give a detailed explanation of Data Representation in digital Computer with suitable

- examples.
- b) Explain the Data types that are represented in computers with example.
- 2. Explain the organization of 4-bit binary adder and 4 bit binary incrementar. Illustrate the functioning of these with examples. Ker
- 3. Explain about
 - a) Micro Program
 - b) Micro Code
 - c) Addressing modes
- 4. Explain a Hardware algorithm for 'Decimal Division' with a neat flow chart.
- a) What is locality reference? Explain. 5.
 - b) What is the need of Replacement Algorithms for a Cache Memory? Explain any two cache replacement strategies.
- 6. Discuss about the following communication protocols a) RS232 b) IEE1394
- 7. Write note on
 - a) Vector Processing
 - b) Four segment Pipelining
- 8. Explain about Shared Memory Multiprocessors.

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Answer any **FIVE** Questions All Questions carry **Equal** Marks

- a) Perform the arithmetic operations (+42) + (-13) and (-42)-(-13) in binary. Using signed 2's complement represent for negative numbers.
 - b) Discuss about error detection codes.
- 2. Explain the organization of data representation in a digital computer with suitable examples.
- 3. Explain the organization and functioning of Micro program sequencer.
- 4. Explain a Booth's algorithm for 'Multiplication of signed-2's compliment numbers' with a neat flow chart.
- 5. Explain various issues related to performance consideration of memory.
- 6. What are the different modes of data transfers? Explain each mode in detail.
- 7. a) Draw the space-time diagram for a six-segment pipeline showing the time it takes to process eight tasks
 - b) Explain how to handle data dependency and branching
- 8. a) Explain Processor arbitration in Multiprocessors.
 - b) Describe in detail about shared memory multiprocessors.

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