

Code No: R22054

R10

SET - 1

II B. Tech II Semester, Regular Examinations, April/May – 2013

COMPUTER ORGANIZATION

(Com. to CSE, ECC)

Time: 3 hours

Max. Marks: 75

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

1. a) Explain briefly about levels of programming Language.
b) Explain Instruction set Architecture Design.
2. Perform the following arithmetic operations using 2's complement method and 1's complement method.
 - i) 1101-011
 - ii) 1111-1001
 - iii) 1111-1111
 - iv) 0111-1101
3. a) Explain the variety of techniques available for sequencing of microinstructions based on the format of the address information in the microinstruction.
b) Hardwired control unit is faster than microprogrammed control unit. Justify this statement
4. a) Explain the terms control word, control memory, control address register and control buffer register.
b) Explain the CPU-IOP communication in detail.
5. a) Briefly explain the following
 - i) Binary coded decimal
 - ii) Floating Point Numbersb) Perform the arithmetic operations $35 + 40$ and $- 35 + (- 40)$ with binary numbers in signed 2's complement representation and signed- magnitude representation
6. a) Explain about virtual memory.
b) What are the performance considerations for cache memory?
7. a) What are the different types of I/O communication techniques? Give brief Notes.
b) In I/O communication techniques, which is the most efficient? Justify your answer
8. a) Write in detail about loosely coupled multiprocessor and tightly coupled multiprocessor.
b) Explain about Instruction pipeline conflicts.



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SET - 2

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Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions

All Questions carry **Equal** Marks

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1. a) Explain the 8085 Microprocessor Instruction set Architecture.  
b) Distinguish between multiprocessor and a multicomputer.
2. a) Explain about memory subsystem organization in detail.  
b) Explain various functions of an I/O processor.
3. a) Explain about Micro-operations.  
b) Explain about VHDL-VHSIC hardware description language.
4. a) Explain the variety of techniques available for sequencing of microinstructions based on the format of the address information in the microinstruction.  
b) Discuss arithmetic shift instruction with suitable examples.
5. a) Discuss briefly about Floating-point Numbers  
b) Explain the data transfer using handshake procedure between CPU and I/O.
6. a) How segmentation differs from paging.  
b) Explain in detail about demand paging.
7. a) Explain standard input-output interfaces  
b) Distinguish between programmed I/O and interrupt-driven I/O.
8. a) Differentiate between RISC and CISC.  
b) Explain the operation of DMA controller with a neat diagram.



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**SET - 3**

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**COMPUTER ORGANIZATION**

(Com. to CSE, ECC)

Time: 3 hours

Max. Marks: 75

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Answer any **FIVE** Questions

All Questions carry **Equal** Marks

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1. a) Draw the block diagram of a computer system and describe each of its parts along with their functions. Also designate the information flow between the parts with arrows.
b) Explain the term 'memory bus bottleneck'.
2. Explain different forms of communication between CPU and I/O processor with neat flow charts.
3. What are the major design considerations in microinstruction sequencing? Explain?
4. a) Differentiate between micro programmed control Vs Hardware control
b) Discuss about Micro sequencer control unit design
5. a) Draw the flowchart for floating point division and explain
b) With an example explain how BCD addition is performed.
6. a) What is a virtual memory technique? Explain different virtual memory techniques.
b) Explain about cache memory
7. a) Explain direct memory Access in details
b) Discuss about Asynchronous data transfer
8. a) Write the characteristics of multiprocessor and advantages
b) What is the different interconnection structures used in multiprocessors? Explain about multistage crossbar switch.



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SET - 4

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Time: 3 hours

Max. Marks: 75

Answer any **FIVE** Questions

All Questions carry **Equal** Marks

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1. a) Explain Instruction set Architecture design  
b) Discuss about Assembly language Instructions
2. a) Explain CPU Organization  
b) Explain architecture of 8085-based computer
3. a) Define instruction, instruction code and operation code..  
b) What is the difference between a direct and indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register?
4. a) Give the typical horizontal and vertical microinstruction formats.  
b) Describe how microinstructions are arranged in control memory and how they are interpreted.
5. a) Explain arithmetic overflow and divide overflow with some examples for 2's complement numbers.  
b) Explain restoring method of division with two 4 bit numbers.
6. Explain how the technique of paging can be implemented.
7. a) A DMA controller transfers 16-bit words to memory using cycle stealing. The words are assembled from a device that transmits characters at a rate of 2400 characters per second. The CPU is fetching and executing instructions at an average rate of one million instructions per second. By how much will the CPU be slowed down because of the DMA transfer?  
b) What are Bus arbitration schemes? Explain.
8. a) Differentiate between RISC and CISC  
b) List the characteristics of multiprocessors.

