Code No: R203104C **R20** SET - 1

III B. Tech I Semester Regular/Supplementary Examinations, December -2023
COMPUTER ARCHITECTURE & ORGANIZATION
(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	Illustrate the evolution of Computer Architecture with neat diagram.	[7M]
	b)	Briefly discuss the basic operational concepts of computers.	[7M]
		(OR)	
2.	a)	What is the instruction Sequencing and explain in detail.	[7M]
	b)	Discuss about the basic instruction types.	[7M]

UNIT-II

3.	a)	How to read input from console and write output on to display? Describe the role of I/O operations in it.	[7M]
	b)	Explain about shift and rotate instructions with suitable example.	[7M]
		(OR)	
4.	a)	Describe the implementation of instructions with AND, OR, NOT and EXOR operations.	[7M]
	b)	Briefly explain role of top of the Stack in implementing stack operation with suitable example	[7M]

UNIT-III

5.	a)	How to speed up the accessing of I/O data by having a dedicated device? Explain in detail its functionality.	[7M]
	b)	Define interrupt? Explain about hardware interrupts.	[7M]
		(OR)	
6.	a)	Differentiate the synchronous and asynchronous bus structures in terms of specific operation.	[7M]
	b)	What are the functions of typical I/O interface? Explain	[7M]

UNIT-IV

7.	a)	How to write the data permanently on memory? Explain various devices available and differentiate them.	[7M]
	b)	What is the Flash Memory and explain in detail.	[7M]
		(OR)	
8.	a)	Describe the concept of interleaving. How it enhances the usage memory and reduces unused memory blocks? Discuss.	[7M]
	b)	Discuss the role tracks and sectors in magnetic hard disk to perform read and write operations.	[7M]

UNIT-V

9.	a)	With neat diagram Explain about Hardwired Control.	[7M]
	b)	What is Processing Unit and discus briefly its operation.	[7M]
		(OR)	
10.	a)	How to fetch a word from memory and execute the instruction explain in detail.	[7M]
	b)	What is Micro program Sequencing and explain in detail.	[7M]

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Code No: R203104C **R20** SET - 2

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(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	What is system software and discuss use of system software.	[7M]
	b)	Describe the evolutionary phases of computer development with respect to functionalities.	[7M]
		(OR)	
2.	a)	What is purpose of the register transfer notation? Explain in detail.	[7M]
	b)	How execute the Assembly language program into execute file? Explain its process.	[7M]

UNIT-II

3.	a)	Explain about the logic instruction with examples	[7M]
	b)	Explain index, register and immediate addressing modes with suitable example.	[7M]
		(OR)	
4.	a)	Explain with suitable example about the Arithmetic instructions.	[7M]
	b)	"IF A>B Write A Else Write B". How do you execute this code snippet with branch instruction? Explain.	[7M]

UNIT-III

5.	a)	Explain with a timing diagram about asynchronous bus transfer.	[7M]
	b)	With neat sketches briefly discuss about Direct Memory Access.	[7M]
		(OR)	
6.	a)	What is PCI bus? Explain in detail about read operation in different data transfer signals.	[7M]
	b)	"Interrupts play a vital role in handling multiple operations and multiple devices"- Justify this statement.	[7M]

UNIT-IV

7.	a)	What is cache memory and explain its role to improve system efficiency.	[7M]
	b)	What is an Optical disk? Discuss how it can be used to support large storage in computer system.	[7M]
		(OR)	
8.	a)	What is ROM? Explain its purpose and working in computer system.	[7M]
	b)	What is different memory allocation techniques used in cache memory? Explain.	[7M]

UNIT-V

9.	a)	Show a possible control sequence for performing the operation MOV R1 R2.	[7M]
	b)	Discuss briefly Control sequence that implements unconditional branch instructions.	[7M]
		(OR)	
10.	a)	Write the control sequence for an uncontrolled branch instruction.	[7M]
	b)	Explain in detail about role of MDR in fetching a word from memory.	[7M]

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Code No: **R20** SET - 3

III B. Tech I Semester Regular/Supplementary Examinations, December -2023
COMPUTER ARCHITECTURE & ORGANIZATION
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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
*****

UNIT-I

1.	a)	Explain in detail about functionalities of system software.	[7M]
	b)	Write about mnemonics in assembly language with example.	[7M]
		(OR)	
2.	a)	What is a System Bus? Discuss different types of System Bus.	[7M]
	b)	Describe the importance of instruction sequencing in the improvement of processor performance.	[7M]

UNIT-II

3.	a)	Briefly discuss about different types of addressing modes.	[7M]
	b)	Explain the role of Stack data structure in computer architecture.	[7M]
		(OR)	
4.	a)	Discuss basic concept of Queue data structure in computer programming equation.	[7M]
	b)	Explain the branch type instructions with examples.	[7M]

UNIT-III

5.	a)	What is role of DMA and explain with a neat diagram.	[7M]
	b)	"Interrupts can enhance the performance of the system by allowing multiple programs execution"-Justify this statement with different types of interrupts.	[7M]
		(OR)	
6.	a)	Describe the structure of bus and Briefly discuss about the Asynchronous bus	[7M]
	b)	How to connect peripheral components of computer system? Explain.	[7M]

UNIT-IV

7.	a)	Illustrate with neat diagram of the Basic memory circuits.	[7M]
	b)	Discuss the necessity and operations to transform EPROM into EEPROM and comapre.	[7M]
		(OR)	
8.	a)	Explain different functions on Optical Disks With a neat diagram.	[7M]
	b)	What is need for Secondary Storage Devices? Discuss different Secondary Storage Devices.	[7M]

UNIT-V

9.	a)	Briefly discuss the register transfer procedure with neat diagram.	[7M]
	b)	Write program with register transfer notation to various arithmetic operations with ADD, SUB, MUL, DIV and MOD.	[7M]
		(OR)	
10.	a)	Explain in detail about Micro Program Sequencing. What is its importance in micro program control?	[7M]
	b)	Discuss format the Micro Instructions and explain.	[7M]

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Code No: R203104C **R20** SET - 4

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Time: 3 hours Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**
All Questions Carry Equal Marks
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UNIT-I

1.	a)	With neat diagram discuss about the basic functional units of a computer.	[7M]
	b)	Explain register transfer notation with suitable example.	[7M]
		(OR)	
2.	a)	How to execute the z=x op y instruction on computer system? Explain with different types of instructions.	[7M]
	b)	What is need for the Assembly language programming and explain its applications	[7M]

UNIT-II

3.	a)	What are the basic Input and Output operations and explain in detail.	[7M]
	b)	What is the role the Rotate instructions? Explain with an example.	[7M]
		(OR)	
4.	a)	Write about i) Immediate ii) Register iii) Index iv) Direct addressing modes in detail.	[7M]
	b)	Briefly discuss about the Arithmetic and logic instructions.	[7M]

UNIT-III

5.	a)	What is interrupt? Differentiate trap Vs interrupt and hardware Vs Software interrupt.	[7M]
	b)	Explain the functions of standard I/O interface through Universal Serial Bus.	[7M]
		(OR)	
6.	a)	Explain how to handle multiple devices with interrupts.	[7M]
	b)	How to enable and disable program interrupts? Explain with two programs running program1: Display Even Number and Program2 : Display odd number.	[7M]

UNIT-IV

7.	a)	What is EEPROM? Explain its purpose and working in computer system.	[7M]
	b)	Define read only memory and discuss different types.	[7M]
		(OR)	
8.	a)	With neat diagram explain about the Magnetic Hard Disks	[7M]
	b)	Discuss the How to perform read and write operations on Optical Disks? Explain in detail.	[7M]

UNIT-V

9.	a)	Explain in detail about micro programmed control unit.	[7M]
	b)	Briefly discuss about the Execution of complete instruction process.	[7M]
		(OR)	
10.	a)	Illustrate about the importance of NEXT address field in Microinstructions.	[7M]
	b)	Explain in detail about the Wide Branch Addressing.	[7M]

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