

Code: 20IT3402

**II B.Tech - II Semester – Regular / Supplementary Examinations  
MAY - 2024**

**COMPUTER ORGANIZATION  
(INFORMATION TECHNOLOGY)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.  
2. All parts of Question must be answered in one place.

			BL	CO	Max. Marks
<b>UNIT-I</b>					
1	a)	Define Register transfer language, List and explain arithmetic micro operations.	L1	CO1	7 M
	b)	Write RTL statements for the following operations: i) BUN ii) BSA iii) ISZ	L2	CO1	7 M
<b>OR</b>					
2	a)	List some data transfer instructions and explain with an example.	L1	CO1	7 M
	b)	Explain the use of multiplexer to transfer information from two source registers to one destination register with a neat diagram.	L2	CO1	7 M
<b>UNIT-II</b>					
3	a)	Discuss about Memory Reference Instructions in detail.	L1	CO1	7 M

	b)	Describe the sequence of steps that takes place during the instruction life cycle.	L2	CO1	7 M
<b>OR</b>					
4	a)	Explain the interrupt cycle execution with the help of a neat diagram.	L2	CO1	7 M
	b)	Illustrate the Input-Output Configuration with all the input output instructions in detail.	L3	CO1	7 M
<b>UNIT-III</b>					
5	a)	Explain how $X = (A+B*C)/(A-B-C)$ is evaluated in stack based computer.	L3	CO2	7 M
	b)	An Instruction is stored at location 300 with its address field at location 301. The address field has the value 400. A processor register R1 contains the number 200. Evaluate the effective address if the addressing mode of the instruction is: i) Immediate ii) Direct iii) Register – indirect iv) Relative v) Index with R1 as the index register.	L3	CO2	7 M
<b>OR</b>					
6	a)	Illustrate the various categories of the set of instructions associated with a computer.	L1	CO2	7 M
	b)	List out and explain the various typical program control instructions.	L2	CO2	7 M

<b>UNIT-IV</b>					
7	a)	Give means to identify on whether or not an overflow has occurred in 2's complement addition or subtraction operations. Describe with an example for each possible situation by assuming 4- bit registers.	L3	CO3	7 M
	b)	Explain Booth's multiplication Algorithm.	L2	CO3	7 M
<b>OR</b>					
8	a)	Explain various cache memory mapping techniques.	L2	CO3	7 M
	b)	Describe the following i) Need for cache memory. ii) Principle of locality of reference.	L1	CO3	7 M
<b>UNIT-V</b>					
9	a)	Give a detailed comparison between Programmed I/O and Interrupt initiated I/O.	L4	CO4	7 M
	b)	Explain daisy-chain priority method.	L2	CO4	7 M
<b>OR</b>					
10	a)	What are the four ways by which we can achieve parallelism according to Flynn's classification?	L1	CO4	7 M
	b)	Perform the arithmetic operation $(A_i+B_i) + (C_i+D_i)$ with a stream of number. Specify a pipeline configuration to carry out the task. List the contents of all registers in the pipeline for $i=1$ through 6.	L3	CO4	7 M