

**K. J. Somaiya Institute of Technology, Sion, Mumbai-22**  
(Autonomous College Affiliated to University of Mumbai)

April – May 2023

(B.Tech.) Program: Information Technology Scheme: II

Examination: SY Semester: IV

Course Code: ITC405 and Course Name: Computer Organization and Architecture

Date of Exam: 23/05/2023

Duration: 2.5 Hours

Max. Marks: 60

**Instructions:**

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	Explain components related to computer architecture.	2	CO1	Understand
ii)	Explain components related to computer organization.	2	CO1	Understand
iii)	Explain hard wired control unit.	2	CO2	Understand
iv)	Explain double precision floating point number representation.	2	CO3	Understand
v)	Explain types of ROM.	2	CO4	Understand
vi)	Explain interrupt-driven I/O.	2	CO5	Understand
vii)	Explain features of microcontroller.	2	CO6	Understand
viii)	Explain any 2 features of 8086 microprocessors.	2	CO6	Understand
Q.2	Solve any four questions out of six.	16		
i)	Discuss any 4 addressing modes with the help of suitable example.	4	CO1	Understand
ii)	Discuss basic instruction cycle with indirect addressing.	4	CO2	Understand
iii)	Demonstrate IEEE 754 Floating Point representation.	4	CO3	Apply
iv)	Explain interleaved and associative memory.	4	CO4	Understand

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v)	Explain the need of I/O module.	4	CO5	Understand
vi)	Explain difference between microprocessor and microcontroller.	4	CO6	Understand
Q.3	Solve any two questions out of three.	16		
i)	Apply booth's algorithm for the multiplication of -4 and 5.	8	CO3	Apply
ii)	Describe L1, L2 and L3 cache with the help of suitable diagram	8	CO4	Understand
iii)	Explain 8051 architecture in detail. Also discuss any five instructions in 8051 with suitable example.	8	CO6	Understand
Q.4	Solve any two questions out of three.	16		
i)	Explain micro operations with the help of instruction cycle. Also discuss the concept of Nano programming.	8	CO2	Understand
ii)	Discuss Flynn's classification in detail with the help of suitable diagram.	8	CO1	Understand
iii)	Explain all three data transfer techniques. Discuss differences between Programmed I/O and Interrupt driven I/O.	8	CO5	Understand

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