

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

Carry on

~~June Nov Dec 2024~~

B. Tech Program: Information Technology Scheme III

Regular Examination: SY Semester: III

Course Code: ITC304 and Course Name: Computer Organization and Architecture

Date of Exam: ~~28/11/2024~~ 30/06/2025 Duration: 02.5 Hours

Max. Marks: 60

Instructions:

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

Q. No.	Question	Max Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	i) Explain the three metrics of Performance measure of computer Architecture? ii) A program ABCD has 15000 instructions is executed on a system whose clock frequency is 3.3Ghz and the design facilitates average Cycles per instruction of 12 . Calculate the CPU time utilized to execute Program ABCD.		CO1	U
b)	Illustrate the 6 stage Pipelining.		CO2	U
c)	Convert the following: i) $(3A6.D87)_{16}$ to Octal. ii) $(324)_{10}$ to Binary and Hexadecimal.		CO3	Ap
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Design the memory hierarchy and explain the characteristics.		CO4	U
b)	Compare between Programmed and Interrupt Driven I/O data transfer.		CO5	U
c)	Implement an embedded C program for 8051 to transfer the letter "A" serially at 9600 baud continuously. Use 8-bit data and 1-stop bit.		CO6	U,Ap
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	i) Draw the Flag Register of 8086 Microprocessors and explain all flags.		CO1	U

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

Carry on

June ~~Nov-Dec 2025~~

B. Tech Program: Information Technology Scheme III

Regular Examination: SY Semester: III

Course Code: ITC304 and Course Name: Computer Organization and Architecture

Date of Exam: ~~28/11/2024~~ 30/06/2025 Duration: 02.5 Hours

Max. Marks: 60

	ii) Describe any 5 Addressing Mode of 8086 Microprocessor.			
b)	Classify and explain the computers according to the type of Parallelism (Flynn's Taxonomy). i) Mention the Advantage, Disadvantage and Uses.		CO2	U
c)	i) Implement the truth table for AND, NAND and OR, XOR Gate with logic diagram. ii) Represent the number $(-125)_{10}$ in single and double precision IEEE754 binary floating-point representation formats.		CO3	Ap
Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	i) Explain the classification of primary memory in a computer system. Your answer should cover the following all the subcategories ii) Mention its characteristics and Advantages and Disadvantages.		CO4	U
b)	Draw the working diagram of the DMA controller and discuss the working of DMA.		CO5	U
c)	i) Explain the pin diagram of 8051 Microcontroller with a suitable pin diagram. ii) Draw the block diagram of the 8051 microcontroller.		CO6	U,Ap
