

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

End Semester Exam

Nov – Dec 2021

Program: B.Tech (Comp & AIDS)

Examination: SY Semester: III

Course Code: 1UCEC304 and Course Name: Digital Logic & Computer Architecture

Duration: 03 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)	Describe any Two addressing mode.	2M	CO3	U

ii)	Explain the Block Level functional Units in computer system.	2M	CO1	U
iii)	Explain Application of microprogramming.	2M	CO4	U
iv)	Draw a JK flip-flop with a neat diagram and Truth table.	2M	CO3	Ap
v)	Represent $(39887.5625)_{10}$ in Single Precision format using IEEE 64-bit double precision floating point representation.	2M	CO2	Ap
vi)	Define the performance measures of Processor: 1.Efficiency 2. Throughput.	2M	CO6	U
vii)	State the Principle Of Locality of Reference.	2M	CO5	U
viii)	Describe the Microinstruction.	2M	CO4	U
Q.2	Solve any four questions out of six.	16		
i)	Write a short note on "Multicore Process Architecture".	4M	CO6	U
ii)	Explain Von Neumann Model in brief.	4M	CO1	U
iii)	Differentiate between Hardwired and Micro programmed control unit.	4M	CO4	An
iv)	Explain different Instruction formats.	4M	CO3	U
v)	Write a short note on Interleaved and Associative Memory.	4M	CO5	U
vi)	Divide $(7)_{10}$ by $(3)_{10}$ using restoring method of binary division.	4M	CO2	Ap

Q.3	Solve any two questions out of three.	16		
i)	Explain Different data Hazards in parallel processing.	8M	CO6	U
ii)	Consider a cache memory of 16 words. Each block consists of 4 words. Size of the main memory is 256 bytes. Draw associative mapping and calculate TAG, and word size.	8M	CO5	U
iii)	Draw the flowchart of Booth's algorithm and perform the Multiplication of $(17)_{10}$ and $(5)_{10}$	8M	CO2	U
Q.4	Solve any two questions out of three.	16		
i)	Compare Von Neumann and Harvard Architecture.	8M	CO1	U
ii)	Describe Instruction Cycle In details.	8M	CO3	U
iii)	State the functions of control unit. Explain Micro-programmed control unit	8M	CO4	U