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-Computer Engineering

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)	Perform Addition of $(7)_{10}$ and $(6)_{10}$ in BCD.	**2M**	CO1	Ap
ii)	Describe ASCII code in Brief.	**2M**	CO1	U
iii)	Perform subtraction using 2's complement for $(10)_{10}$ - $(7)_{10}$	**2M**	CO2	Ap
iv)	Draw a JK flip-flop with a neat diagram and Truth table.	**2M**	CO3	U
v)	Represent $(34.25)_{10}$ in Single Precision format using IEEE 754 floating point representation	**2M**	CO2	Ap
vi)	Define the performance measures of Processor: Efficiency,Throughput.	**2M**	CO6	U

vii)	State the Principle Of Locality of Reference.	2M	CO5	U
viii)	Describe the functions of the Control Unit.	2M	CO4	U
Q.2	**Solve any four questions out of six.**	16		
i)	Write a short note on Bus Arbitration Techniques.(Any two)	4M	CO6	U
ii)	Explain Von Neumann Model in brief.	4M	CO1	U
iii)	Differentiate between Hardwired and Microprogrammed control Unit.	4M	CO4	An
iv)	Explain Different Addressing Modes with suitable examples.(Any Four)	4M	CO3	U
v)	Give Characteristics of Computer Memory.	4M	CO5	U
vi)	Describe Restoring Division Method with the help of Flowchart.	4M	CO2	U
Q.3	**Solve any two questions out of three.**	16		
i)	Write a short Note on Flynn's Classification	8M	CO6	U
ii)	Explain Cache Consistency and Coherency with suitable examples. Also give methods to maintain Cache Consistency	8M	CO5	U
iii)	Draw the flowchart of Booth's algorithm and perform the Multiplication of $(-2)_{10}$ and $(2)_{10}$	8M	CO2	Ap
Q.4	**Solve any two questions out of three.**	16		
i)	Prove using Boolean algebra "NAND gate is an Universal Gate"	8M	CO1	U

ii)	Describe Priority Encoder & implement Logic Diagram for the same.	**8M**	CO3	Ap
iii)	Explain a hardwired control unit with the help of a neat diagram.	**8M**	CO4	U