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: LY Semester: VII

Course Code: 1UCEDLC7043 and Course Name: Blockchain

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)	Difference between Bitcoin and Blockchain.	2	CO1	U
ii)	List the types of Forks in Blockchain.	2	CO2	U
iii)	Define Full Node.	2	CO3	U
iv)	Define EVM.	2	CO4	U

v)	Describe function of Metamask.	2		CO5	U
vi)	Briefly describe one application where blockchain can be integrated with Cyber Security.	2		CO6	U
vii)	Describe the role of blooms filters.	2		CO3	U
viii)	Describe the tools used for simulation of blockchain on local machine in brief.	2		CO5	U
Q.2	Solve any four questions out of six.	16			
i)	Describe the properties of the Hash functions that make the Blockchain secure and immutable.	4		CO1	U
ii)	Compare PoW, PoS and PBFT consensus algorithms	4		CO2	An
iii)	Show the execution of the following bitcoin script step by step along with the content of the stack 2 3 OP_ADD 5 OP_EQUAL	4		CO3	Ap
iv)	Describe the state trie, transaction trie and receipt trie in Ethereum.	4		CO4	U
v)	Write a Smart Contract in solidity for a case study related to ICO.	4		CO5	Ap
vi)	Write a Smart Contract in solidity for a case study related to a government application.	4		CO6	Ap
Q.3	Solve any two questions out of three.		16		
i)	Describe and explain Bitcoin networks in detail.		8	CO3	U

ii)	Describe Ethereum Block fields and transaction fields in detail along with state trie, transaction trie and receipt trie.	8	CO4	U
iii)	Discuss types of tokens along with their standards and examples in detail.	8	CO6	Ap
Q.4	Solve any two questions out of three.	16		
i)	Describe the structure of the Bitcoin Block with Block height and hash. Also describe the linking of blocks in blockchain.	8	CO1	U
ii)	Identify the role of Bitcoin lock and unlock script for independent verification of transactions with example.	8	CO2	An
iii)	Write a smart contract in solidity for a case study related to Logistics.	8	CO5	Ap