CLASS: MCA   SEMESTER : III
BRANCH: MCA   SESSION : MO/2022

SUBJECT: CA549 BLOCKCHAIN TECHNOLOGY

TIME: 3:00 Hours   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	Differentiate between Blockchain and Bitcoin?	[2] [CO2] [BL2]
Q.1(b)	Elaborate the different types of Blockchain?	[3] [CO2] [BL2]
Q.1(c)	Identify the features that make Blockchain based transactions trusted and secure?	[5] [CO1] [BL1]
Q.2(a)	Describe a consensus algorithm in blockchain?	[2] [CO1] [BL1]
Q.2(b)	Explain the POW and POS consensus algorithm?	[3] [CO2] [BL1]
Q.2(c)	Discuss in detail the SHA-256 algorithm?	[5] [CO3] [BL2]
Q.3(a)	What is a block in a blockchain?	[2] [CO1] [BL1]
Q.3(b)	Mention the various fields of a block header in a new block?	[3] [CO1] [BL1]
Q.3(c)	Miners produce blocks which are checked for validity by other participating nodes. Discuss the stages for validation.	[5] [CO3] [BL2]
Q.4(a)	Explain the Byzantine Fault tolerance Algorithm?	[2] [CO1] [BL1]
Q.4(b)	How can you prove that a particular Hash Function is Collision Free?	[3] [CO3] [BL3]
Q.4(c)	Differentiate between the Puzzle Friendly and Collision Free properties of Cryptographic Hash Function?	[5] [CO2] [BL2]
Q.5(a)	Explain Nash Equilibrium in Game Theory with appropriate example?	[2] [CO1] [BL1]
Q.5(b)	Differentiate between Hyperledger and Ethereum Blockchain platform?	[3] [CO2] [BL2]
Q.5(c)	Discuss Blockchain applications in e-governance?	[5] [CO2] [BL3]

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