

# P P SAVANI UNIVERSITY

Third Semester of M. Sc. (DS) Examination

January 2023

SSDM8550 Blockchain Technology

11.01.2023, Wednesday

Time: 10:00 a.m. To 12:30 p.m.

Maximum Marks: 60

## Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

### SECTION - I

Q - 1	Answer the Following (Any five).	[05]	CO	BTL
(i)	Ledger is hosted on a centralized server. True/False?		1	1
(ii)	SHA is a _____ algorithm.		1	1
(iii)	A hash function has variable input length. True/False?		1	1
(iv)	The ledger type used by Bitcoin is _____.		1	1
(v)	Bitcoin is an application of Hyperledger. True/False?		1	1
(vi)	Hyperledger Fabric is a public Blockchain framework. True/False?		1	1
(vii)	Ethereum is a cryptocurrency. True/False?		1	1
Q - 2 (a)	What do you mean by 51% attack? Explain in detail.	[05]	2	2
Q - 2 (b)	Write a detailed note on Smart Contract along with its features.	[05]	2	2

### OR

Q - 2 (a)	Differentiate between public and private blockchain.	[05]	3	3
Q - 2 (b)	Why is blockchain a trusted approach?	[05]	2	4
Q - 3 (a)	How can our business become more efficient using Blockchain technology? State and explain any such solution.	[05]	3	4
Q - 3 (b)	What is the difference between traditional and distributed systems?	[05]	3	5

### OR

Q - 3 (a)	What do you mean by blocks in blockchain?	[05]	3	5
Q - 3 (b)	Is it possible to modify the data once it is written in a block? Explain in detail.	[05]	4	5
Q - 4	Attempt any one.	[05]		
(i)	Discuss different types of assets with a real-life scenario.		4	6
(ii)	Differentiate between proof of work and proof of stake.		4	6

### SECTION - II

Q - 1	Answer the Following (Any five).	[05]		
(i)	_____ is a procedure through which all the peers of the Blockchain network reach a common agreement about the present state of the distributed ledger.		1	1
(ii)	_____ is a mechanism that allows tokens to be securely transferred from one Blockchain to another Blockchain.		1	1
(iii)	Identity is anonymous in public Blockchain. True/False?		1	1
(iv)	Ethereum is an application of bitcoin. True/False?		1	1
(v)	PoET stands for _____.		1	1
(vi)	Hyperledger is a Blockchain. True/False?		1	1
(vii)	Zk-SNARK stands for _____.		1	1
Q - 2 (a)	Discuss the purpose and working of Proof-of-Work (PoW) Consensus.	[05]	2	2

Q - 2 (b)	Explain Hyperledger Composer along with its benefit.	[05]	3	2
<b>OR</b>				
Q - 2 (a)	What are main issues with the Proof-of-Work consensus (PoW)? Also state TWO other alternatives to PoW consensus.	[05]	4	6
Q - 2 (b)	Explain Private Blockchain network. Also compare it with Consortium Blockchain.	[05]	4	4
Q - 3 (a)	What is a Consensus Mechanism?	[05]	3	6
Q - 3 (b)	Explain one real life Blockchain based application and justify usage of Blockchain technology in this application.	[05]	3	5
<b>OR</b>				
Q - 3 (a)	Discuss Blockchain fabric development.	[05]	4	5
Q - 3 (b)	Discuss usage of Blockchain in a car auction market.	[05]	4	6
Q - 4	Attempt any one.	[05]		
(i)	Explain the core components of Blockchain architecture.		4	4
(ii)	How are following two purposes served by a Blockchain architecture?		4	4
	1. History of data			
	2. Data validity & security			

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CO : Course Outcome Number

BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create