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22CMP427N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2025
(Fourth Semester)

Branch – **COMPUTER SCIENCE**

BLOCKCHAIN TECHNOLOGY

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	A -------- occurs when two distinct inputs produce the same output a) Hash b) Overflow c) Collision d) Symmetry	K1	CO1
	2	A ---------- gives you a way to verify that the information hasn't changed. a) Linked List b) Stack c) Pointer d) Hash Pointer	K2	CO1
2	3	-------- are just copies of nodes that a malicious adversary can create to look like there are a lot of different participants a) Sybils b) Clones c) Hashes d) Duplicates	K1	CO2
	4	According to the rules of Bitcoin, the node that creates a block gets to include a special transaction in that block. This is called --------- a) Consensus b) Block Reward c) Transaction Fees d) Transaction Gift	K2	CO2
3	5	-------- is a script that can never be redeemed. a) Proof of Burn b) Proof of Concept c) Proof of Test d) Proof of Work	K1	CO3
	6	To publish a transaction, we want to get the entire network to hear about it. This happens through a ---------- a) Proof of Concept b) Flooding Algorithm c) Distributed Lock d) Ledger	K2	CO3
4	7	The middle ground of using an identity that is not your real name is called ---------- a) Anonymity b) Pseudonymity c) Security d) Confidentiality	K1	CO4
	8	--------- is the idea of getting rid of mixing services and replacing them with a peer-to-peer protocol by which a group of users can mix their coins. a) Decentralized mixing b) Decentralized Mining c) Centralized mixing d) Centralized Mining	K2	CO4
5	9	Consensus about what is and isn't in the block chain, and therefore a consensus about which transactions have occurred is --------- a) Consensus About Rules b) Consensus About History c) Consensus About Mining d) Consensus About Nonce	K1	CO5
	10	Pick out the bitcoin advocacy group a) Bitcoin Foundation b) Bitcoin Group c) Bitcoin Federation d) Bitcoin Cosortium	K2	CO5

Cont...

SECTION - B (35 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Elucidate the properties of cryptographic hash functions	K2	CO1
		(OR)		
	11.b.	Explain Merkle Trees.		
2	12.a.	Compare Centralization with Decentralization.	K4	CO2
		(OR)		
	12.b.	"The key idea behind proof-of-work is that we approximate the selection of a random node by instead selecting nodes in proportion to a resource that we hope that nobody can monopolize. "Expand.		
3	13.a.	Identify the salient aspects of Bitcoin scripting language.	K3	CO3
		(OR)		
	13.b.	Identify the Limitations and Improvements to the bitcoin protocol.		
4	14.a.	Examine the issues in De-Anonymizing Bitcoin.	K4	CO4
		(OR)		
	14.b.	Compare Zerocoin with ZeroCash.		
5	15.a.	Identify the salient aspects of Bitcoin Core.	K3	CO5
		(OR)		
	15.b.	Inspect the use of Bitcoins as Smart Property.		

SECTION -C (30 Marks)
Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Analyze the concepts of digital signature algorithms.	K4	CO1
2	17	Expand how consensus is achieved without identity in a block chain.	K4	CO2
3	18	Examine the Tasks of bitcoin miners.	K4	CO3
4	19	"There are several mechanisms that can make transaction graph analysis less effective." Analyze.	K4	CO4
5	20	Examine the Stakeholders in Bitcoin.	K4	CO5

Z-Z-Z END