Seat No.: _____   Enrolment No._____

NATIONAL FORENSIC SCIENCES UNIVERSITY
M.Sc. Digital Forensics and Information Security (Batch:21-23)
Semester - III - Jan-2023

Subject Code: CTMSDFIS SIII P3
Subject Name: Blockchain and Cryptocurrency
Time: 11:00 AM to 02:00 PM
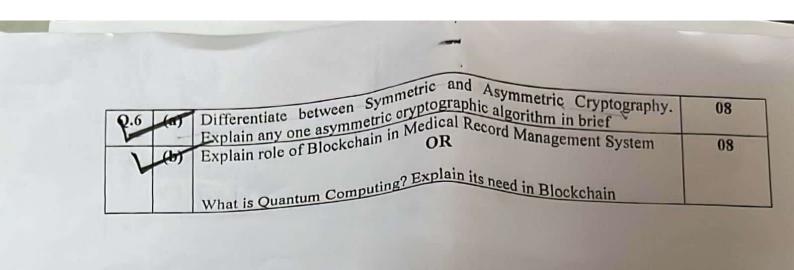
Date: 04/01/2023

Total Marks: 100

Instructions:
1. Write down each question on separate page.
2. Attempt all questions.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.

			Marks
Q.1	(a)	Define Blockchain. Differentiate between public and private Blockchain	05
	(b)	What is the difference between hashing and encryption? List all the possible differences	05
	(c)	What is PoW? Explain all the steps involved in PoW	07
Q.2	(a)	How Blockchain is different than the distributed databases?	05
	(b)	How PoW guarantees ledger consistency? Explain in brief	05
		OR	
		Explain DAO and DAO attack?	
	(c)	What is Hash function? Write down the properties of good hash function	07
Q.3	(a)	What is Smart Contract? Explain it with example	08
	(b)	Explain the concept of digital signature in Blockchain in detail	08
Q.4	(a)	PoS is more energy efficient than PoW. Justify	05
		OR	
		What are the limitations of the Blockchain?	
	(b)	What is Sybil attack? How it can be prevented in Blockchain?	05
	(c)	What is PoB? Compare PoB with PoW in detail	07
		OR	
		Explain hard forking and soft forking in terms of bitcoin Blockchain	
Q.5	(a)	What is Gas and Gas limit? Explain all the cases	05
	(b)	Explain the role of Merkle tree in Blockchain	05
	(c)	Explain practical byzantine fault tolerance mechanism	07

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| Q.6 | (a) | Differentiate between Symmetric and Asymmetric Cryptography. Explain any one asymmetric cryptographic algorithm in brief | 08 |
| | (b) | Explain role of Blockchain in Medical Record Management System | 08 |

OR

What is Quantum Computing? Explain its need in Blockchain

END OF PAPER