GURU NANAK INSTITUTE OF TECHNOLOGY
An Autonomous Institute under MAKAUT
2022
BLOCKCHAIN TECHNOLOGY
IT801A

TIME ALLOTTED: 3 HOURS **FULL MARKS: 70**

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

			Marks	CO No
1.	(i)	Blockchain networks are much _____ and deal with no real single point of failure. a) Simpler b) Easier to scale c) Convenient d) Faster e)	1	CO1
	(ii)	Blockchain can perform user transactions without involving any third-party intermediaries. a) With the help of the third party b) Without involving any third party c) Without involving any owned d) Without involving any authenticated	1	CO1
	(iii)	Did Blockchain enable a centralized or a decentralized system for the exchange of value? a) Decentralized b) Centralized c) None of the above d) Can't say	1	CO1
	(iv)	What is the full form of P2P blockchain a) Peer to Peer b) Public to private c) Product to Product d) None of above	1	CO1
	(v)	Cryptographic Hash Function transforms an arbitrary length of a fixed length string that act more or less as a Fingerprint of the document a) True b) False	1	CO3

(vi)	In Bitcoin case, blockchain is used in a _____way. a) Decentralized b) Centralized c) Both A and B d) None of the above	1	CO2
(vii)	Blocks hold batches of valid transactions that are hashed and encoded into a? a) Merkle tree b) Cryptographic hash c) Genesis block d) Temporary fork	1	CO3
(viii)	RSA..... be used for Digital Signatures a) Must not b) Cannot c) Can d) Should not	1	CO2
(ix)	In asymmetric key cryptography, the private key is kept by a) Sender b) Receiver c) Sender and receiver both d) All the connected devices to the network	1	CO2
(x)	Which of the following statement is true about blockchain? a) Blockchain is a decentralized, distributed, and oftentimes public, digital ledger consisting of records called blocks b) A blockchain database is managed autonomously using a peer-to-peer network and a distributed timestamping server c) A blockchain has been described as a value-exchange protocol. d) All of the above	1	CO3
(xi)	Blockchains store data in the form of? a) Line b) Circle c) Block d) Rhombus	1	CO1
(xii)	Who is a miner a) Type of blockchain b) An algorithm that predicts the next part of the chain c) Computers that validate and process blockchain transactions d) A person doing calculations to verify a transaction	1	CO1

GROUP – B
(Short Answer Type Questions)

Answer any ***three*** from the following: **3×5=15**

			Marks	CO No
2.		Describe five core components of blockchain technology?	5	CO2
3.		Describe how blockchain is helpful for e-commerce.	5	CO2
4	(a)	Explain Digital Signature?	4	CO2

	(b)	What is digital envelope?	1	CO2
5		Describe the concept of a block of blockchian and its components?	5	CO2
6.	(a)	What is cryptographic hash function?	2	CO2
	(b)	Explain Merkle hash tree ?	3	CO3

GROUP – C
(Long Answer Type Questions)

Answer any ***three*** from the following: **3×15=45**

			Marks	CO No
7.	(a)	What is distributed lager?	2	CO1
	(b)	How is Blockchain distributed ledger different from a traditional ledger?	3	CO2
	(c)	Explain how public blockchains ensure the adherence of transaction and block-writing rules?	5	CO4
	(d)	Explain proof of work (PoW) and proof of stack (PoS) consensus?	5	CO3
8.	(a)	Explain RSA algorithm?	5	CO4
	(b)	Write down RSA algorithm? In a RSA system, the public key of a user is 17 and N =187. What will be the private key of this user?	5	CO4
	(c)	Explain collision resistance hash function?	5	CO2
9	(a)	What is blockchain technology?	2	CO3
	(b)	What is soft and hard fork?	3	CO2
	(c)	Explain the Architecture of blockchain?	5	CO4
	(d)	Differentiate between a public and a private blockchain?	5	CO2
10.	(a)	How Blockchain is Revolutionizing the Traditional Business Network, Explain with example?	5	CO3
	(b)	Explain Zero knowledge proof policy?	5	CO2
	(c)	Explain Ripple protocol consensus algorithm?	5	CO2
11.	Write Short Notes on **any three** of the followings:		3x5=15	
	(a)	Shared ledger	5	CO3
	(b)	Consensus	5	CO2
	(c)	Smart contracts	5	CO4
	(d)	Information frictions	5	CO2
	(e)	Interaction frictions	5	CO2