R20

Code No: R20A0522

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

IV B.Tech I Semester Supplementary Examinations, April 2024

Block Chain Technology

(CSE, IT, CSE-CS, CSE-DS & CSE-IOT)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	**A**	Explain in details about centralized and decentralized and distributed systems with neat diagrams.	**[7M]**
	B	Describe about CAP theorem and block chain. Also discuss about benefits and limitations of block chain?	**[7M]**
		OR	
2	**A**	List and explain the Methods of Decentralization?	**[7M]**
	B	Define Blockchains. Discuss various Types of Blockchains?	**[7M]**
		SECTION-II	
3	**A**	Compare asymmetric cryptography, public and private keys in the context of block chain?	**[7M]**
	B	A browser sends its public key to the server and requests for some data. The server encrypts the data using browser's public key and sends the encrypted data. Browser receives this data and decrypts it. With proper justification, determine a Smart Oracle or a Smart Contract for the benefit of security in the said ecosystem?	**[7M]**
		OR	
4	**A**	Describe in detail about various steps in consensus algorithm?	**[7M]**
	B	Demonstrate the procedure in Bitcoin Improvement Proposals (BIPs)?	**[7M]**
		SECTION-III	
5	**A**	Demonstrate structure of Bitcoin and its various types of Bitcoin payments?	**[7M]**
	B	Define Bitcoin and list various types of Transactions?	**[7M]**
		OR	
6	**A**	Articulate Theoretical Foundations in Alternative Coins?	**[7M]**
	B	What is wallet in bit coin? Explain in detail about the different types of wallet with example?	**[7M]**
		SECTION-IV	
7	**A**	Infer ethical issues with Blockchain platforms and explain how the Ethereum stands strong supporting safe chaining?	**[7M]**
	B	Analyze Precompiled Contracts with an example?	**[7M]**
		OR	
8	**A**	Define Ethereum Network. Analyze the Ether with Ethereum Network?	**[7M]**
	B	List and explain the Elements of Ethereum blockchain?	**[7M]**

SECTION-V

9	**A**	Demonstrate Hyperledger as Protocol based on Reference Architecture?	**[8M]**
	B	Explain about Ricardian's and contracts and DAO.	**[6M]**
		OR	
10	**A**	With neat diagram explain CORDA architecture?	**[7M]**
	B	Give brief notes on Hyperledger Saw tooth and its core features	**[7M]**

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R20

Code No: R20A6908

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

IV B.Tech I Semester Supplementary Examinations, April 2024

Adhoc and Sensor Networks

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	***A***	What are the security considerations and challenges when deploying MANETs in various applications, and how are they addressed?	**[7M]**
	B	What is the energy-efficiency implications of MANETs in applications that rely on battery-powered devices, and how can they be optimized?	**[7M]**
		OR	
2	***A***	Explain the concept of "route discovery" in MANET routing and provide an example scenario?	**[7M]**
	B	What are the differences between proactive routing protocols like DSDV and reactive routing protocols like AODV in terms of routing table management?	**[7M]**

SECTION-II

3	***A***	What are the challenges in managing group membership and maintaining group communication in highly dynamic ad hoc network environments?	**[7M]**
	B	How can energy-efficient multicast routing algorithms be designed for battery-powered devices in ad hoc networks?	**[7M]**
		OR	
4	***A***	How do cross-layer optimizations contribute to the efficiency of multicast data transmission in ad hoc networks?	**[7M]**
	B	Explain about Rebroadcasting schemes.	**[7M]**

SECTION-III

5	***A***	What are some recent advancements and research directions in geocasting within ad hoc networks, such as blockchain-based location verification or machine learning-assisted geocasting?	**[7M]**
	B	Describe about AdHoc TCP protocol Overview?	**[7M]**
		OR	
6	***A***	How does the use of duty cycling and sleep/wake scheduling at the data link layer impact the end-to-end communication delay and energy efficiency in sensor networks using TCP?	**[7M]**
	B	How do lower-layer protocols handle issues related to synchronization, time synchronization, and data synchronization in sensor networks, and how does this affect TCP's performance?	**[7M]**

SECTION-IV

7	***A***	What are the key advantages of sensor networks in applications like environmental monitoring, healthcare, and industrial automation?	**[7M]**

	B	How does the choice of wireless communication technology influence the performance and capabilities of sensor networks?	**[7M]**

OR

8	***A***	Can you discuss the concept of multicast routing and how it differs from unicast routing at the Routing layer?	**[7M]**
	B	How does the Link layer manage error detection and correction to ensure data integrity during transmission?	**[7M]**

SECTION-V

9	***A***	What strategies and protocols are employed at the upper layers to improve energy efficiency and prolong the lifespan of sensor nodes?	**[7M]**
	B	How does congestion control at the transport layer impact the overall performance and reliability of WSNs?	**[7M]**

OR

10	***A***	Describe about Upper Layer Issues of WSN.	**[7M]**
	B	Explain about sensor networks and mobile Robots.	**[7M]**

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R20

Code No: R20A6703

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

IV B.Tech I Semester Supplementary Examinations, April 2024

Data Science

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	***A***	Explain R Objects and write a program to create a 3-dimensional array and filling values by column.	**[7M]**
	B	Describe data frames with illustration in R.	**[7M]**
		OR	
2	***A***	Discuss about named arguments, default parameters and also write a program to demonstrate passing arguments to a function.	**[6M]**
	B	Describe about control structures with illustration.	**[8M]**
		SECTION-II	
3	***A***	Illustrate about data manipulation packages data.table, reshape2 with simple programs.	**[6M]**
	B	What is reading in larger datasets with read.table and explain it with appropriate illustration.	**[8M]**
		OR	
4	***A***	Explain about working with relational databases and also explain about data manipulation package dplyr.	**[7M]**
	B	How to use read.table () in R? Give the syntax and various options while using the function?	**[7M]**
		SECTION-III	
5	***A***	Explain about over fitting, measures of model performance and evaluating classification models.	**[7M]**
	B	What is confusion matrix? Explain its role in performance analysis of a model.	**[7M]**
		OR	
6	***A***	Explain various categories of Data Science problems	**[7M]**
	B	How to evaluate scoring models and probability model.	**[7M]**
		SECTION-IV	
7	***A***	Describe about understanding linear regression and Understanding logistic regression.	**[6M]**
	B	Build a logistic regression model and making predictions.	**[8M]**
		OR	

8	***A***	Explain how unsupervised learning is different from supervised learning. What are the various algorithms used	**[7M]**
	B	Write R script to calculate regression coefficient	**[7M]**

SECTION-V

9	***A***	Discuss about placing the data, mapping options and graphs as objects.	**[7M]**
	B	Compare univariate graphs and bivariate graphs with examples.	**[7M]**

OR

10	***A***	Compare multivariate graphs and bivariate graphs with examples.	**[7M]**
	B	What are differences between categorical Vs quantitative data and draw a graph for it.	**[7M]**

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R20

Code No: R20A0521

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

IV B.Tech I Semester Supplementary Examinations, April 2024

Cloud Computing

(CSE, IT, CSE-CS, CSE-AIML, CSE-DS & CSE-IOT)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	A	Explain about Layered services of Cloud Computing with a neat sketch.	**[7M]**
	B	Discuss in detail the underlying principles of Parallel computing.	**[7M]**
		OR	
2	A	List out and explain features of SaaS.	**[7M]**
	B	Outline the similarities and differences between distributed computing, grid computing and cloud computing.	**[7M]**

SECTION-II

3	A	Explain different levels of Virtualization Implementation.	**[7M]**
	B	Discuss about CPU Virtualization.	**[7M]**
		OR	
4	A	Distinguish between Full Virtualization and Para- Virtualization.	**[7M]**
	B	Elaborate on the Virtualization of Clusters and Data Centers.	**[7M]**

SECTION-III

5	A	Explain the steps to provision process of virtual machine with a neat diagram.	**[7M]**
	B	Illustrate in detail about the Aneka resource provisioning service.	**[7M]**
		OR	
6	A	List and explain Different techniques of VM migration.	**[7M]**
	B	Describe the life cycle of a VM within OpenNebula.	**[7M]**

SECTION-IV

7	A	Describe in detail about the Sustainability of Software as a Service.	**[7M]**
	B	Discuss about data security risks in the cloud.	**[7M]**
		OR	
8	A	Write notes on centralizing email communications and web based communication tools.	**[7M]**
	B	Define an Information Card. Explain how Information Cards are used to protect data.	**[7M]**

SECTION-V

9	A	Explain Load Balancing techniques for SLO Management.	**[7M]**
	B	What are the key components of service level agreement? Explain.	**[7M]**
		OR	
10		With a neat sketch draw the flowchart of SLA management in cloud and explain different Phases?	**[14M]**

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Code No: **R20A0520**

R20

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

IV B.Tech I Semester Supplementary Examinations, April 2024

Big Data Analytics

(CSE, IT & CSE-AIML)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	A	Differentiate between structured, semi-structured and unstructured data. Provide examples of each type and explain their significance in big data applications.	**[10M]**
	B	Discuss the evolution of big data.	**[4M]**
		OR	
2	A	Explore the 'Need of big data' in today's digital and information-driven landscape. Explain how big data has become an integral part of various sectors.	**[7M]**
	B	Define big data and elaborate on its key characteristics with suitable examples.	**[7M]**
		SECTION-II	
3	A	Describe the architecture of HDFS in detail with a neat diagram.	**[8M]**
	B	Explain how do we read a file from HDFS in detail.	**[6M]**
		OR	
4	A	Differentiate Hadoop, SQL and RDBMS	**[7M]**
	B	Why do organizations prefer Hadoop over relational databases to store and process big data?	**[7M]**
		SECTION-III	
5	A	Discuss how data is processed with Hadoop using MapReduce.	**[10M]**
	B	Explain the role of the combiner in MapReduce framework.	**[4M]**
		OR	
6	A	Discuss the advantages, disadvantages, and applications of NoSQL databases.	**[8M]**
	B	Describe the resource allocation process in YARN.	**[6M]**
		SECTION-IV	
7	A	Describe the MongoDB import and export with suitable commands.	**[6M]**
	B	Explain the Create, Read, Update, and Delete (CRUD) operations in MongoDB with examples of each operation.	**[8M]**
		OR	
8	A	Discuss the concept of key spaces in Apache Cassandra and their role in data organization.	**[5M]**
	B	Explain the different types of Cassandra collections with suitable examples.	**[9M]**
		SECTION-V	
9	A	Discuss input formats in MapReduce programming.	**[6M]**

	B	Compare and contrast these map-side and reduce-side join approaches, highlighting their advantages and use cases.	**[8M]**
		OR	
10	A	Discuss about Apache Spark frame work in detail.	**[7M]**
	B	What is a DataFrame in Apache Spark? Discuss various operations performed on a DataFrame with suitable examples.	**[7M]**

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