Reg. No.															

Question Paper Code	13494

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Sixth Semester

Computer Science and Engineering (IoT)

20CIEL604 - DESCRIPTIVE ANALYTICS FOR IoT

Regulations - 2020

Duration: 3 Hours Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	In IoT, edge computing helps in: (a) Storing data in a centralized cloud (b) Processing data closer to the source (device) (c) Increasing data retrieval time (d) Sending data to data lakes for later analysis	1	K1	CO1
2.	Which of the following is not a Big Data processing tool? (a) TensorFlow (b) Apache Hadoop (c) PowerPoint (d) Spark	1	K1	CO1
3.	Which of the following databases follows a Key-Value Store model? (a) MongoDB (b) Cassandra (c) Redis (d) MySQL	1	K1	CO2
4.	NoSQL databases are best suited for: (a) Transactional banking applications (b) IoT and real-time applications (c) Traditional relational databases (d) Applications requiring ACID compliance	1	K1	CO2
5.	Which type of learning is used when an AI agent interacts with an environment to maximize rewards? (a) Supervised Learning (b) Unsupervised Learning (c) Reinforcement Learning (d) Deep Learning	1	K1	CO3
6.	What is the main goal of reinforcement learning? (a) Finding patterns in unlabeled data (b) Learning from rewards and penalties (c) Predicting continuous values (d) Grouping similar data	1	K1	CO3
7.	What is the function of replication in MongoDB? (a) Backs up data (b) Ensures high availability by creating copies of data (c) Encrypts data (d) Increases storage	1	K1	CO4
8.	What is the maximum size of a single document in MongoDB? (a) 8MB (b) 16MB (c) 32MB (d) 64MB	1	K1	CO4
9.	Which system is more suited for real-time fraud detection? (a) Edge Analytics (b) Big Data Analytics (c) Data Warehousing (d) Batch Processing	1	K1	CO5
10.	What is an example of an open-source cloud platform? (a) OpenStack (b) AWS (c) Microsoft Azure (d) Google Cloud	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Classify two differences between Structured and Unstructured Data.	2	K2	CO1
12.	Why is encryption important for data at rest?	2	K1	CO1
13.	What is Massively Parallel processing?	2	K1	CO2
14.	What is meant by Map Reduce?	2	K1	CO2
15.	Differentiate between user-based and item-based collaborative filtering.	2	K2	CO3
16.	What is a regression model in Machine Learning?	2	K1	CO3
17.	List the functions of Count and Limit in MongoDB.	2	K1	CO4
18.	What is the need of aggregate function in MongoDB?	2	K1	CO4

19.	List the role of anomaly detection in Network Analytics.	*2*	*K1*	*CO5*
20.	How does Edge Analytics reduce latency in IoT applications?	*2*	*K1*	*CO5*
21.	Why backup is important in cloud data management?	*2*	*K1*	*CO6*
22.	What is Interactive Mode in Cloud Services?	*2*	*K1*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Illustrate IoT Data Analytics and explain how data is collected, processed, and analyzed in IoT environments.	*11*	*K2*	*CO1*
		OR			
	b)	Outline the characteristics of data including volume, velocity, variety, veracity, and value (5Vs**)** of Big Data.	*11*	*K2*	*CO1*
24.	a)	Explain in brief about YARN.	*11*	*K2*	*CO2*
		OR			
	b)	Summarize the Interacting with Hadoop ecosystem like Pig, Hive, Sqoop and HBase.	*11*	*K2*	*CO2*
25.	a)	Discuss their key functionalities NumPy, Pandas, and Matplotlib with examples.	*11*	*K2*	*CO3*
		OR			
	b)	Illustrate with an example the Decision Tree algorithm in Machine Learning.	*11*	*K2*	*CO3*
26.	a)	Explain JSON, why it is needed in MongoDB, and how is a unique key generated.	*11*	*K2*	*CO4*
		OR			
	b)	Explain about the concept of arrays in MongoDb.	*11*	*K2*	*CO4*
27.	a)	Outline Flexible NetFlow (FNF) architecture, including key components and its significance.	*11*	*K2*	*CO5*
		OR			
	b)	Summarize the concept of a Distributed Analytics System and its significance in modern data processing.	*11*	*K2*	*CO5*
28.	a)	Explain cloud computing and its key service models (IaaS, PaaS, and SaaS) with examples.	*11*	*K2*	*CO6*
		OR			
	b)	Discuss the key security threats in cloud computing and how they can be mitigated.	*11*	*K2*	*CO6*