

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**POST GRADUATE DIPLOMA IN BIOINFORMATICS - SEMESTER – I EXAMINATION –**  
**WINTER - 2025**

**Subject Code: 1310204****Date: 24-12-2025****Subject Name: Cloud Computing, Data Mining & Visualization****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Draw neat and clean diagrams as required.

**Q.1 Write a note on following****(Marks-10X2=20)**

1. List any four characteristics of cloud infrastructure.
2. What do you mean by cloud delivery models?
3. What are serverless components in cloud computing?
4. What are the different data types used in cloud computing?
5. What is the usage of virtualization platform in implementing cloud?
6. Define: data mining, data warehouse.
7. Define: supervised learning, unsupervised learning.
8. What are the advantages of decision tree classifier?
9. What do you understand about a fact table in the context of a data warehouse?
10. Differentiate between data warehouse and database.

**Q.2 Answer the following (Any 2 out of 3)****(Marks-2X10=20)**

1. What are the necessities of cloud environment? Explain in detail (i) Software as a Service (ii) Platform as a Service (iii) Infrastructure as a Service.
- 2.

Outlook	Temperature	Humidity	Windy	Play Golf
Rainy	Hot	High	False	No
Rainy	Hot	High	True	No
Overcast	Hot	High	False	Yes
Sunny	Mild	High	False	Yes
Sunny	Cool	Normal	False	Yes
Sunny	Cool	Normal	True	No
Overcast	Cool	Normal	True	Yes
Rainy	Mild	High	False	No
Rainy	Cool	Normal	False	Yes
Sunny	Mild	Normal	False	Yes
Rainy	Mild	Normal	True	Yes
Overcast	Mild	High	True	Yes
Overcast	Hot	Normal	False	Yes
Sunny	Mild	High	True	No

For given training examples in above sample dataset, create the decision tree.

3. Explain in detail the mining process of microarray gene expression data. What are the challenges involved in it?

**Q.3 Answer the following (Any 6 out of 8)****(Marks-6X5=30)**

1. Differentiate between (i) public cloud (ii) private cloud (iii) community cloud and (iv) hybrid cloud.
2. What are the challenges & risks involved in implementing cloud

infrastructure.

3. How does resource replication take place in cloud computing?
4. What is a hypervisor in cloud computing? What are its types and usage?
5. Describe the data preprocessing tasks with suitable example.
6. Explain the working mechanism of K-nearest neighbor classifier.
7. Give an example of each one of the following: (i) line chart (ii) bar chart (iii) scatter plot (iv) pie chart (v) bubble chart
8. Differentiate between OPAP and OLTP.

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