

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



B. Tech (Fourth Semester – Regular/Supplementary) Examinations, April 2026
23BCDPE24011/23BCDPC24001-Predictive Modeling & Analytics
(CSE-DS)

Time: 3 hrs

Maximum: 60 Marks

Answer ALL questions
(The figures in the right hand margin indicate marks)

PART – A**(2 x 5 = 10 Marks)**Q.1. Answer **ALL** questions

- | | CO # | Blooms Level |
|---|------|--------------|
| a. What is cosine similarity? Give an example. | CO1 | K1 |
| b. Differentiate between clustering and classification. | CO2 | K2 |
| c. List out the steps in Data Pre-processing. | CO3 | K1 |
| d. Why visualization is important? Justify with an example. | CO4 | K2 |
| e. List out the components of R. | CO6 | K1 |

PART – B**(10 x 5 = 50 Marks)**Answer **ALL** the questions

- | | Marks | CO # | Blooms Level | | | | | | | | | | | | | | | | | | | | |
|--|----------|----------|--------------|--------------|----------|----------|--------------|-----|----|----------------|-------|-------|-------|-------|-------|--------------------|-----|------|------|------|------|---|---|
| 2. a. Differentiate between (i) structured data and unstructured data (ii) Static data and streamed data. | 5 | CO1 | K2 | | | | | | | | | | | | | | | | | | | | |
| b. Write a short note on Data Driven and User Driven Analytics with examples. | 5 | CO1 | K2 | | | | | | | | | | | | | | | | | | | | |
| (OR) | | | | | | | | | | | | | | | | | | | | | | | |
| c. Differentiate between keyword-based search and semantic-based search. | 5 | CO1 | K2 | | | | | | | | | | | | | | | | | | | | |
| d. Explain the types of Data Attributes with examples. | 5 | CO1 | K2 | | | | | | | | | | | | | | | | | | | | |
| 3.a. What are the techniques used to visualize the data? Explain with examples. | 5 | CO2 | K2 | | | | | | | | | | | | | | | | | | | | |
| b. Consider the following dataset:
For a new instance: Outlook = Sunny, Temperature = Cool
Calculate posterior probabilities and classify the instance using Naïve Bayes | 5 | CO2 | K3 | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Class</td><td>Yes</td><td>Yes</td><td>No</td><td>Yes</td><td>No</td></tr> <tr> <td>Outlook</td><td>Sunny</td><td>Sunny</td><td>Rainy</td><td>Sunny</td><td>Rainy</td></tr> <tr> <td>Temperature</td><td>Hot</td><td>Mild</td><td>Cool</td><td>Cool</td><td>Mild</td></tr> </table> | | | | Class | Yes | Yes | No | Yes | No | Outlook | Sunny | Sunny | Rainy | Sunny | Rainy | Temperature | Hot | Mild | Cool | Cool | Mild | | |
| Class | Yes | Yes | No | Yes | No | | | | | | | | | | | | | | | | | | |
| Outlook | Sunny | Sunny | Rainy | Sunny | Rainy | | | | | | | | | | | | | | | | | | |
| Temperature | Hot | Mild | Cool | Cool | Mild | | | | | | | | | | | | | | | | | | |
| (OR) | | | | | | | | | | | | | | | | | | | | | | | |
| c. Write a short note on Support Vector Machines with a neat diagram. | 5 | CO2 | K2 | | | | | | | | | | | | | | | | | | | | |
| d. Given training data:
For a new point (2,2) and k = 3, (i) Compute Euclidean distances (ii) Find nearest neighbors (iii) Predict the class. | 5 | CO2 | K3 | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Point</td><td>X</td><td>Y</td><td>Class</td></tr> <tr> <td>P1</td><td>1</td><td>2</td><td>A</td></tr> <tr> <td>P2</td><td>2</td><td>3</td><td>A</td></tr> <tr> <td>P3</td><td>3</td><td>3</td><td>B</td></tr> <tr> <td>P4</td><td>6</td><td>5</td><td>B</td></tr> </table> | | | | Point | X | Y | Class | P1 | 1 | 2 | A | P2 | 2 | 3 | A | P3 | 3 | 3 | B | P4 | 6 | 5 | B |
| Point | X | Y | Class | | | | | | | | | | | | | | | | | | | | |
| P1 | 1 | 2 | A | | | | | | | | | | | | | | | | | | | | |
| P2 | 2 | 3 | A | | | | | | | | | | | | | | | | | | | | |
| P3 | 3 | 3 | B | | | | | | | | | | | | | | | | | | | | |
| P4 | 6 | 5 | B | | | | | | | | | | | | | | | | | | | | |
| 4.a. How do industries adopt Predictive Analytics? Explain with different use cases. | 5 | CO3 | K2 | | | | | | | | | | | | | | | | | | | | |
| b. Differentiate between over fitting and under fitting. | 5 | CO3 | K2 | | | | | | | | | | | | | | | | | | | | |
| (OR) | | | | | | | | | | | | | | | | | | | | | | | |

c.	Discuss the steps in building a Predictive Model.	10	CO3	K2
5.a.	How Decision trees are helpful in Data Visualization?	5	CO4	K1
b.	How do you visualize hidden data? Explain with a neat diagram.	5	CO4	K2
(OR)				
c.	How are outliers visualized? Discuss with the help of an example.	5	CO4	K2
d.	List out the benefits of Data Visualization.	5	CO5	K1
6.a.	List out the characteristics of Big Data Visualization.	5	CO6	K2
b.	Explain the major technological trends in Predictive Analytics.	5	CO5	K2
(OR)				
c.	Explain the steps in building a Rapid Prototype.	5	CO6	K2
d.	Discuss the Data Types in R with examples.	5	CO6	K2

--- End of Paper ---