CSE - 5006

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10	Outling the process of pattern classification system with a poat	EM
ID.	diagram.	IMIC
1C.	Describe evidence pooling and invariances with an example.	2M
2A.	Write the equation for Bayesian decision theory. Summarize with an example.	5M
2B.	Outline the process of minimum error rate classification.	3M
2C.	Interpret the following Graph 2 and write the observation for the functional structure and determines the maximum value and and categorize the input pattern accordingly.	2M

Time: 9:30 am to 12:30 pm

MAX.MARKS: 50

Marks

INSTRUCTIONS TO CANDIDATES:-

Interpret the following Graph 1 for the proper classification? What 3M

sea bass

kind of issue will provide the novel result. Illustrate.

salmon

SUBJECT: PATTERN CLASSIFICATION (CSE - 5006) REVISED CREDIT SYSTEM (06/07/2023)

• Answer **ALL** the questions.

1A.

• Missing data may be suitable assumed.

Width

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MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL (A constituent unit of MAHE, Manipal) II SEMESTER M.TECH.(DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING) MAKEUP EXAMINATIONS, JULY 2023

	$\begin{array}{c} \hline Action \\ (e.g., classification) \\ \hline Oiscriminant \\ functions \\ Input \\ x_1 \\ x_2 \\ x_3 \\ \hline X_2 \\ \hline X_3 \\ \hline X_2 \\ \hline X_3 \\ \hline X_4 \\ \hline Sraph 2 \\ \end{array}$	
3A.	Derive the equation for the multivariate normal case where neither the mean nor the covariance matrix is known.	4M
3B.	Calculate the posteriori density $p(\theta D)$ for the Bayesian parameter estimation Gaussian case where the mean is the unknown parameter.	3M
3C.	Discuss the three sources of classification error in our final system.	3M
4A.	In the non-parametric technique, estimate the density function when the probability is unknown.	3M
4B.	Derive the equations to estimate density in Parzen window approach, by assuming the region R to be a d-dimensional hypercube.	4M
4C.	Write and discuss the algorithm for K-nearest neighbour classification.	3M
5A.	Outline the process of linear discriminant function with an example.	4M
5B.	Describe the Boltzmann's function with an example.	4M
5C.	Write in detail the functionality of principal component analysis.	2M