Name: Enrolment No:	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM & ENERGY STUDIES

End Semester Examination (Online) Dec, 2021

Program: BBA (Analytics and Big Data) **Semester: End**
Subject/Course: Predictive Modelling **Max. Marks: 100**
Course Code: DSBA3006 **Duration: 3 Hours**

IMPORTANT INSTRUCTIONS

1. *The student must write his/her name and enrolment no. in the space designated above.*
2. *The questions have to be answered in this MS Word document.*
3. *After attempting the questions in this document, the student has to upload this MS Word document on Blackboard.*

Q.No		Marks	COs
	Section A	**10Qx2M=20Marks**	
1	Share examples of different Prediction Models (e.g., Clustering, Classification, Forecasting, Outliers, Timeseries)		CO1
2	Discuss at least 3 differences between OLAP and OLTP systems (e.g., in Retail - POS vs Data Warehouse for Sales or Inventory)		CO1
3	Provide one example each from AI (Artificial Intelligence), ML (Machine Learning) and DL (Deep Learning) from any industry		CO2
4	Share at least 2 business scenarios when one needs to apply Supervised Learning models (e.g., logistic regression, k-nearest neighbor for classification; linear regression for regression)		CO2
5	Share at least 2 business scenarios when one needs to apply Un-Supervised Learning models (e.g., k-means for clustering; PCA for dimensionality reduction)		CO2
6	Share at least 2 business scenarios when one needs to apply Reinforcement Learning models (e.g., learn the model for model-based; Q-learning for model-free)		CO2
7	Discuss the various types of regression models (linear, logistic, polynomial, etc.)		CO1
8	Why we need to design for Descriptive, Predictive as well as Prescriptive Analytics for any enterprise?		CO2
9	Provide one example/business scenario each from Descriptive, Predictive as well as Prescriptive Analytics		CO2
10	Provide one example/business scenario each from Data Warehouse as well as Data Lakes.		CO2

	Section B	**4Qx5M= 20 Marks**	
11	Share some business scenarios where we apply Prediction Models (e.g., Clustering, Classification, Forecasting, Outliers, Timeseries)	5	CO1
12	Mention at least 5 parameters each from the 3 groups (Business/Market, Process/Operations, Technology/Systems) to support any prediction use case (e.g., Customer Churn Prediction, Stock Price Prediction, etc.)	5	CO3
13	Discuss Data Modeling needed for Descriptive, Predictive as well as Prescriptive Analytics	5	C04
14	Discuss how to build Prediction Dashboards from data sources (e.g., DB Layer, Meta Data/Data Access Layer/Views, Consuming Views, Visualization Layer)	5	C04
	Section C	**3Qx10M=30 Marks**	
15	Describe the Data Science Workflow with any given use case (e.g., Customer Churn Prediction, Stock Price Prediction, etc.)	10	CO1
16	Describe the advantages and differences between OLAP and OLTP systems.	10	CO2
17	Share examples of different Prediction Models (e.g., Clustering, Classification, Forecasting, Outliers, Timeseries)	10	C03
	Section D	**2Qx15M= 30 Marks**	
18	Discuss BI Architecture Framework in modern business using Data Warehouse and Data Lakes. Provide examples at least from one industry in your response.	15	CO4
19	Discuss the key requirements (data sources, data processing techniques) for the 3 different types of Machine Learning Techniques i.e., Supervised Learning, Un-Supervised Learning and Reinforcement Learning. Take one example for each of these 3 types and explain the process flow using the data science workflow (e.g., identifying business problem, mapping to AI/ML/DL, Data Prep, EDA/Initial Data Analysis, Modelling, Evaluation, Deployment, etc.)	15	C03

ANSWERS