UNIVERSITY OF PETROLEUM & ENERGY STUDIES
1st Semester Examination Dec, 2021

Program: MBA (Business Analytics) **Semester: 1st**
Subject/Course: Data Environment **Max. Marks: 100**
Course Code: DSBA7002 **Duration: 3 Hours**

IMPORTANT INSTRUCTIONS

1. *The student must write his/her name and enrolment no. in the response sheet.*
2. *All the questions as part of 4 sections have to be answered.*
3. *After attempting the questions, the student has to upload the response sheet on CodeTantra.*

Q.No		Marks	COs
	Section A	**10Qx2M=20Marks**	
1	Discuss the differences of SQL vs No-SQL Databases		CO1
2	Discuss the differences of OLAP vs OLTP		CO1
3	Provide one example each from AI (Artificial Intelligence), ML (Machine Learning) and DL (Deep Learning)		CO2
4	Share business scenarios when one needs to apply Supervised Learning models		CO2
5	Share business scenarios when one needs to apply Un-Supervised Learning models		CO2
6	Share business scenarios when one needs to apply Reinforcement Learning models		CO2
7	Why we need to design APIs or Views on top of our available data sources?		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	Describe the various types of DBs available in the market (e.g., SQL, No-SQL, Graph, Spatial, etc.). Provide 1 product example from each of the DB categories.	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 where we can apply various Machine Learning Techniques (Supervised Learning, Un-Supervised Learning and Reinforcement Learning) with advantages and disadvantages	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 data management requirements (data sources, data processing techniques) for the 3 types of Machine Learning Techniques i.e., Supervised Learning, Un-Supervised Learning and Reinforcement Learning	15	C03

ANSWERS