UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Course: MBA OG   **Semester: IV**
Program: Data Analytics & Applications in Oil and Gas
Time: 03 hrs.
Course Code: OGOG 8003   **Max. Marks:100**

Instructions:

SECTION A
10Q x 2M=20Marks

S. No.		Marks	CO
Q 1	*Fill in the blanks* Linear Regression is **a** machine learning algorithm based on **...................** learning. Regression models a target prediction value based on .... variables.	2	CO1
Q 2	Define Optical Character Recognition (OCR)	2	CO1

Q 3	Identify the incorrect parameter picked by a robot using AI commands until goal is reached
	    a. PICKDOWN
	    b. PUTDOWN
	    c. MOVEFORWARD
	    d. MOVEBACK
		2	CO1

Q 4	*Fill in the blanks* According to John McCarthy the father of AI, "*AI means the science and engineering of making.............., especially...............*"	2	CO1
Q 5	*True or False* Research in AI has focused mainly on the following components of intelligence: learning, reasoning, problem solving, perception, and using language.	2	CO1
Q 6	Define CNN and ANN............	2	CO1
Q 7	*Fill in the blanks* The objective of clustering is................	2	CO1
Q 8	What is Crowdsourcing?	2	CO1
Q 9	What are HDFS and MapR? in big data solutions.	2	CO1
Q 10	Principal Component analysis (PCA) is a technique used for..................	2	CO1

SECTION B
4Q x 5M= 20 Marks

Q 1	Define the Prescriptive and Descriptive analytic techniques.	5	CO2
Q 2	Describe exploratory data analysis (EDA)	5	CO2

Q 3	Describe High Performance Computing and HPC5 supercomputer peak processing power.	5	CO2
Q 4	Describe fuzzy logic and Genetic algorithm application in oil & gas sector	5	CO2

SECTION-C
3Q x 10M=30 Marks

Q 1	How oil and gas industry can leverage artificial intelligence? Give examples from upstream sector.	10	CO3
Q 2	Describe the Time series data forecasting and explain the driven analytical workflows to forecast oil & gas production in a well	10	CO3
Q 3	Describe the THREE tenets of Upstream Data and how these are addressing the current business issues by an Oil & Gas critical asset data	10	CO3

SECTION-D
2Qx15M= 30 Marks

Q 1	Explain drilling analytics. Summarize the case study "Steam-*Assisted Gravity Drainage Completion",* the data-driven methodology to ascertain the optimal values for those control variables that lead to maximum oil production in bitumen reservoirs.	15	CO4
Q 2	Explain the potential and challenges of applying AI and ML methods for geoscience applications. Summarize the case study of "Seismic fault detection – a cascaded supervised learning approach from GOM"	15	CO4