

| | |
|--------------------------------------|--|
| Name: Enrolment No: |  |
|--------------------------------------|--|

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2024

Course: MBA OG
Program: Data Analytics & Applications in Oil and Gas
Course Code: OGOG 8003

Semester: IV
Time : 03 hrs.
Max. Marks:100

Instructions:

SECTION A
10Qx2M=20Marks

| S. No. | | Marks | CO |
|--------|--|-------|-----|
| Q 1 | Expand the following aberrations 1. EDA..... 2. PCA..... 3. MPP..... 4. GA..... | 2 | CO1 |
| Q 2 | Fill in the blanks. 1. The objective of clustering is..... 2. The objective of ensemble learning is..... | 2 | CO1 |
| Q 3 | Pandas is <i>and manipulation tool</i> , with the help of, one can work with..... | 2 | CO1 |
| Q 4 | A Linear Regression model's main aim is to find the best-fit linear line and the..... of intercept and coefficients such that the error is minimized. A. Optimal values B. Linear line C. Linear polynomial D. None of the mentioned above | 2 | CO1 |
| Q 5 | From Oil & Gas sector give one example each of structured and unstructured data. | 2 | CO1 |
| Q 6 | Differentiate <i>Geostatistics</i> from simple <i>Statistics</i> | 2 | CO1 |
| Q 7 | Define <i>Self Organizing Maps (SOM)</i> | 2 | CO1 |
| Q 8 | What is a National Data Lake? | 2 | CO1 |
| Q 9 | Two distinct branches of data mining that can turn raw data into actionable knowledge are..... | 2 | CO1 |
| Q 10 | What are intelligent oil wells? | 2 | CO1 |

| SECTION B 4Qx5M= 20 Marks | | | |
|---|---|-----------|------------|
| Q 1 | Describe the Time series data forecasting and explain the driven analytical workflows to forecast oil & gas production in a well. | 5 | CO2 |
| Q 2 | Define the Prescriptive and Descriptive analytic techniques | 5 | CO2 |
| Q 3 | Explain faster real time data transmission: Field to desktop – Reduce turnaround time through application of DARTS (downfall Air Receiver Technology) | 5 | CO2 |
| Q 4 | Describe <i>fuzzy logic and Genetic algorithm</i> applications in oil & gas | 5 | CO2 |
| SECTION-C 3Qx10M=30 Marks | | | |
| Q 1 | Describe the <i>THREE tenets of Upstream Data</i> and how these are addressing the current business issues by an Oil & Gas critical asset data | 10 | CO3 |
| Q 2 | Describe <i>Grid Computing</i> and its applications in Oil & Gas business analytics environments | 10 | CO3 |
| Q 3 | How oil and gas industry can leverage artificial intelligence? Give one example from 3D fault model building from seismic data. | 10 | CO3 |
| SECTION-D 2Qx15M= 30 Marks | | | |
| Q 1 | AI can play a vital role in achieving net-zero emissions by identifying critical emission sources, assessing their properties and chemical composition, analyzing historical CO2 data, With this object, Describe and analyze the case study of Saudi Aramco: The role of AI in achieving net zero emissions, Opportunities and challenges. | 15 | CO4 |
| Q 2 | Explain the <i>data segmentation techniques</i> . Describe the case study on PCA to logging data sets in oil and gas exploration wells from Moldavian Platform, - Southern Carpathians and results by comparison with production tests, core analyses, lithology logs | 15 | CO4 |