

Roll No: -----



UNIVERSITY OF PETROLEUM & ENERGY STUDIES

End Semester Examination, December 2018

Program/course: MBA (OG)
Subject: Fundamental of Petroleum Exploration
Code : OGOG7002
No. of page/s: 2

Semester – I
Max. Marks: 100
Duration : 3 Hrs.

Note: All sections are compulsory.

SECTION A (5 x 4 =20 Marks)

Note: All Questions are compulsory.

S. No.		Marks	CO
Q 1	What is the significance of a Geological Time Scale? Write in ascending order the following of the <i>Geological Eras</i> (increasing times) and their age in millions years. a. Mesozoic b. Paleozoic c. Cenozoic d. Proterozoic	5	CO1, CO2
Q 2	Draw the <i>Rock Symbol</i> for each of the following rock types. a. Carbonate b. Volcanic c. Shale d. Conglomerate e. Granite	5	CO1, CO2
Q 3	Draw the <i>Well Symbol</i> against each of the followings Well type. a. Abandoned b. Dry Well c. Gas Well d. Dry well with Oil Show e. Well Location	5	CO1, CO2

Q 4	<p>Kerogen varies in chemical composition, by weight percentage, within the following ranges (fill the gaps).</p> <p>a. Carbon.....</p> <p>b. Hydrogen.....</p> <p>c. Nitrogen.....</p> <p>d. Oxygen.</p> <p>e. Sulfur.....</p>	5	CO1, CO2
SECTION B (5X4 = 20 Marks) Note: Attempt any of the four questions and answer in brief			
Q 5	Describe the formation of sedimentary basins and Indian sedimentary basins classification with respect to petroleum exploration	5	CO4
Q 6	Describe the significance of petroleum reserves and resource and total world petroleum reserves estimated as on 2017	5	CO3, CO4
Q 7	Describe natural oil seeps and their significance in hydrocarbon exploration. How you distinguish <i>natural oil seep from man-made sources such as oil tankers</i>	5	CO2
Q 8	What are Strategic Petroleum reserves (SPR) and India's preparedness with respect to this?	5	CO3, CO4
Q 9	Describe the frontier areas of petroleum exploration and the present status petroleum production from deep-water basins in India.	5	CO3, CO4
SECTION-C (10x3 = 30 Marks) Note: Attempt any three questions			
Q 10	Describe the main petroleum system elements. Summarize the primary and secondary hydrocarbon migration processes	10	CO1, CO2
Q 11	Describe the <i>Production Sharing Contracts (PSC)</i> and explain the terms <i>Cost Oil</i> and <i>Profit Oil</i> . Draw a model PSC contract.	10	CO4, CO5
Q 12	What are geophysical, geochemical and geological methods for petroleum exploration?. Describe the importance of seismic 3D surveys	10	CO2, CO4
Q 13	What are the main characteristic of petroleum reservoirs? Describe various types of natural reservoir rocks	10	CO2
SECTION-D (10x3 = 30 Marks) Note: All questions are compulsory			
Q 14	Describe the main "Economic Indicators", of an economic model for, run over an oil and gas investment opportunity. Describe the "Decision Tree" analysis to make investment decision	10	CO4, CO5

<p>Q 15</p>	<p>Describe the classical <i>volumetric equation for oil-in-place</i>. Also, calculate the six values of Reserves necessary to draw the tornado chart for the three-parameter system, using the following input values, draw the <i>Tornado chart</i>.</p>				<p>10</p>	<p>CO4, CO5</p>
<p>Parameters (Units)</p>	<p>Worst</p>	<p>Most-likely</p>	<p>Best</p>	<p>A-Area (acres) 200 H-Net Pay (ft) 35 R-Recovery factor (STB/ac-ft) 75 Reserves (MMSTB) -----</p>		
<p>Q 16</p>	<p>Complete the following discounted cash flow table, plot the cumulative cash flow graph and calculate profitability indicator such as P/I Ratio.</p>				<p>10</p>	<p>CO4, CO5</p>
<p>Year</p>	<p>Net Cash (\$MM)</p>	<p>Cumulative Cash Flow (\$MM)</p>	<p>Discounted Cash Flow at.... 5% 10% 20%</p>			
<p>1993</p>	<p>-450</p>	<p>-450</p>	<p>-450</p>	<p>-450</p>	<p>-450</p>	
<p>1994</p>	<p>-250</p>	<p>-700</p>	<p>-667</p>	<p>-645</p>	<p>- 605</p>	
<p>1995</p>	<p>-50</p>					
<p>1996</p>	<p>100</p>					
<p>1997</p>	<p>180</p>					
<p>1998</p>	<p>220</p>					
<p>1999</p>	<p>240</p>					
<p>2000</p>	<p>260</p>					
<p>2001</p>	<p>250</p>					
<p>2002</p>	<p>230</p>					
<p>2003</p>	<p>220</p>					
<p>2004</p>	<p>200</p>					
<p>2005</p>	<p>180</p>					
<p>2006</p>	<p>160</p>					
<p>2007</p>	<p>130</p>					
<p>2008</p>	<p>100</p>					
<p>Totals</p>	<p>1720</p>	<p>-----</p>	<p>-----</p>	<p>-----</p>	<p>-----</p>	