

Name:  
Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**Online End Semester Examination, Jan.2021**

**Course : Fundamental of Oil & Gas Business**  
**Program: MBA OG**  
**Course Code: OGOG 7001**

**Semester: I**  
**Time 03 hrs.**  
**Max. Marks: 100**

**SECTION A**

- 1. Each Question will carry 5 Marks**
- 2. Instruction: Complete the statement / Select the correct answer(s)**

S. No.	Question	CO												
Q 1	<p><b>Fill In the Blanks:</b></p> <p>a. The main composition of biogas is _____</p> <p>b. _____ is a business model that works by offering a product or service free of charge (typically digital offerings such as software, content, games, web services or other) while charging a premium for advanced features, functionality, or related products and services.</p> <p>c. Important properties of lubricants are _____</p> <p>d. _____ is the measure of a fluid’s internal resistance to flow.</p> <p>e. What is the full form of SAE _____</p>	CO1												
Q2	<p><b>Match the followings:</b></p> <table border="0" style="width: 100%;"> <tr> <td style="text-align: center;"><b>STOCK MARKETS</b></td> <td style="text-align: center;"><b>COUNTRY</b></td> </tr> <tr> <td>1. Hang Seng</td> <td>a. USA</td> </tr> <tr> <td>2. Nikkei</td> <td>b. China</td> </tr> <tr> <td>3. Strait Times</td> <td>c. Japan</td> </tr> <tr> <td>4. NASDAQ</td> <td>d. Singapore</td> </tr> <tr> <td>5. Shenzhen</td> <td>e. Hong Kong</td> </tr> </table>	<b>STOCK MARKETS</b>	<b>COUNTRY</b>	1. Hang Seng	a. USA	2. Nikkei	b. China	3. Strait Times	c. Japan	4. NASDAQ	d. Singapore	5. Shenzhen	e. Hong Kong	CO2
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Q3	<p><b>MCQs:</b></p> <ol style="list-style-type: none"> <li>1. The term “coal oil” normally denotes               <ol style="list-style-type: none"> <li>a. Kerosene</li> <li>b. Gasoline</li> <li>c. Furnace oil</li> <li>d. none of these</li> </ol> </li> <li>2. India allows 100% foreign direct investment in the setting of LNG terminals               <ol style="list-style-type: none"> <li>a. TRUE</li> <li>b. FALSE</li> <li>c. Misleading</li> <li>d. Can't Say</li> </ol> </li> <li>3. What is the average efficiency of a typical commercial solar cell?               <ol style="list-style-type: none"> <li>a. 30%</li> <li>b. 20%</li> <li>c. 15%</li> <li>d. 35%</li> </ol> </li> <li>4. What are flexible fuel vehicles?               <ol style="list-style-type: none"> <li>a. Vehicles running with a fuel containing 50% methanol</li> </ol> </li> </ol>	CO2												

	b. Vehicles running with a fuel containing 60% methanol c. Vehicles running with a fuel containing up to 85% ethanol d. Vehicles running with a fuel containing up to 25% ethanol 5. Most Common fuel used on ships is a. IFO 180 b. MDO c. IFO 380 d. MGO	
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Q4	<b>MCQs:</b> 1. Which is the longest gas pipeline in India? Kakinada–Hyderabad–Uran–Ahmedabad Dabhol–Bangalore Hazira–Vijaipur–Jagdishpur–GREP–Dahej–Vijaipur Mehsana – Bathinda 2. The full form of NYMEX is New York Mercantile Exchange New York Multi-product Exchange New York Mineral Exchange New York Merchant Exchange 3. "You have bought Satyam Call strike price Rs. 240 at a premium of Rs.25. Lot size is 1,200. What is your profit (+) or loss (-) if you sell the Call at Rs 40?" Rs.19000 Rs.17000 Rs.18000 None of these 4. _____ requires the earth’s gravity to generate electricity. Wind plant Natural gas plant Tidal Plant Hydropower plant 5. Which of the following oil futures is not trade on the Multi Commodity Exchange of India? Brent Crude Furnace oil Bombay High crude Oil None of these	CO2
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Q5	<b>Fill In the Blanks:</b> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Fuel</th> <th>unit</th> <th>tonnes of coal equivalent</th> <th>tonnes of oil equivalent</th> <th>barrels of oil equivalent</th> <th>GJ (*)</th> </tr> </thead> <tbody> <tr> <td>coal</td> <td>tonne</td> <td>1</td> <td>0.7</td> <td>.....</td> <td>29.3</td> </tr> <tr> <td>firewood (**) (air-dried)</td> <td>tonne</td> <td>0.46</td> <td>0.32</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>kerosene (jet fuel)</td> <td>tonne</td> <td>1.47</td> <td>.....</td> <td>.....</td> <td>.....</td> </tr> <tr> <td>natural gas</td> <td>1000 m<sup>3</sup></td> <td>1.19</td> <td>0.83</td> <td>.....</td> <td>.....</td> </tr> </tbody> </table>	Fuel	unit	tonnes of coal equivalent	tonnes of oil equivalent	barrels of oil equivalent	GJ (*)	coal	tonne	1	0.7	.....	29.3	firewood (**) (air-dried)	tonne	0.46	0.32	.....	.....	kerosene (jet fuel)	tonne	1.47	.....	.....	.....	natural gas	1000 m <sup>3</sup>	1.19	0.83	.....	.....	CO3
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	gasoline	barrel	0.18	0.12	.....	5.2	
	gasoil/diesel	barrel	0.2	0.14	.....	5.7	
	(*) Note that GJ/tonne is the same as MJ/kg. (**) Note that the energy equivalent of wood can vary a factor 3 depending on the moisture content of the wood.						
Q6	<b>TRUE OR FALSE:</b> 1. Iran is one of the major LNG exporters of the world. 2. LNG is stored in the cargo tanks under normal atmospheric pressure. 3. India allows 100% foreign direct investment in the setting of LNG terminals. 4. Methane is heavier than air. 5. Term contracts for sale/purchase of crude oil are of long duration, and for supplies of cargoes, they are for more than a year.						CO3
<b>SECTION B</b>							
<b>1. Each question will carry 10 marks</b> <b>2. Instruction: Write short / brief notes</b>							
Q 7	Marker oil is a reference in the oil market, apply the condition it is called benchmark crude in the market. Exemplify the global Crude Oil markets and their benchmark crudes?						CO2
Q 8	Pipelines are a very important mode of oil and gas transportation. Please describe the pipeline / pipeline project/ activities, which are supported by IT. Differentiate cost impact on on-shore /off-shore pipeline.						CO2
Q 9	Compare the ideal coefficients of performance of the same heat pump installed in Mumbai and Bengaluru. M: $T_{hot} = 70^{\circ}\text{F}$ , $T_{cold} = 40^{\circ}\text{F}$ B: $T_{hot} = 70^{\circ}\text{F}$ , $T_{cold} = 15^{\circ}\text{F}$ M: $T_{hot} = 294^{\circ}\text{K}$ , $T_{cold} = 277^{\circ}\text{K}$ B: $T_{hot} = 294^{\circ}\text{K}$ , $T_{cold} = 263^{\circ}\text{K}$						CO4
Q 10	For a coal-fired utility boiler, the temperature of high pressure steam would be about 540°C and T cold, the cooling tower water temperature would be about 20°C. Calculate the Carnot efficiency of the power plant?						CO3
Q 11	Analyze the followings Petroleum sector organization's with examples:						CO3
	a. Integrated Oil & Gas organizations. b. Independent Oil& Gas organizations. c. Oil service organizations. d. Oil equipment manufacture companies.						

**Section C**

- 1. Each Question carries 20 Marks.**
- 2. Instruction: Write long answer.**

Q12

Petrol, diesel prices to change every day from May 1, trial run in five cities  
Come May 1, petrol and diesel prices will change every day in sync with international rates, much like it happens in most advanced markets. State-owned fuel retailers Indian Oil Corp (IOC), Bharat Petroleum Corp Ltd (BPCL) and Hindustan Petroleum Corp Ltd (HPCL), which own more than 95% of nearly the 58,000 petrol pumps in the country, will launch a pilot for daily price revision in five select cities from May 1 and gradually extend it across the country. Petroleum minister Dharmendra Pradhan indicated that the government has encouraged market-based pricing of fuels. “From political to economic diplomacy, energy sector of India has gained international recognition by efficient implementation of initiatives,” he said. Pradhan however made it clear that the government will not force a decision for daily revision of fuel prices. “Every day change in pricing of petroleum products is a recommendation of experts. The government has nothing to do with it. “Ultimately, we will be driving towards market linked rates on a daily basis at all pumps across the country,” IOC chairman B Ashok told PTI. A pilot for daily revision of petrol and diesel price will be first implemented in Puducherry, Vizag in Andhra Pradesh, Udaipur in Rajasthan, Jamshedpur in Jharkhand and Chandigarh, he said. State fuel retailers currently revise rates on the 1st and 16th of every month based on average international price of fuel in the preceding fortnight and currency exchange rate. Instead of using fortnightly average, pump rates will reflect daily movement in international oil prices and rupee-US dollar fluctuations. It is technically possible to change rates daily but we have to first do a pilot. Once pilot is done and its implications studied, we will extend it to other parts of the country,” he said. While Ashok said the pilot is to be “launched within one month” and did not give a specific date, industry sources said the pilot is planned to be launched on May 1. Daily price change will remove the big leaps in rates that need to be effected at the end of the fortnight and consumer will be more aligned to market dynamics. While petrol price was freed from government control in June 2010, diesel rates were deregulated in October 2014. Technically, oil companies have freedom to revise rates but often they have been guided by political considerations. Rates differ by only a few paise between pumps of the three state fuel retailers. Unbranded petrol at IOC pumps in Delhi costs Rs 66.29 per litre, while the same at BPCL pumps in the city is priced at Rs 66.37 a litre. HPCL pumps sell for Rs 66.48 per litre. Unbranded diesel at IOC pumps in Delhi costs Rs 55.61, Rs 55.66 at BPCL outlets and Rs 55.69 a litre at HPCL pumps. With daily changes, which are unlikely to be more than a few paise per litre, the political pressures for not revising rates particularly when they are to be hiked will go, sources said. Petrol price was last revised downward by Rs 3.77 a litre on April 1 and diesel rates were cut by Rs 2.91. This was the first revision in two-and-half-months as oil firms did not change prices during assembly elections in five states, including Uttar Pradesh and Punjab. Ashok said prices of petrol and diesel in a particular market (city or town) will be the same.

CO4

Q1. Analyze the strategy work with respect to Oil & Gas transportation and storage of petroleum-finished products.

Q2. Evaluate and Critically analyze the PSUs of Indian petroleum sector get the benefits and how they will coordinate with their old pricing system.