

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: Fundamental of Oil and Gas Business
Programme: MBA Oil & Gas
Time: 03 hrs.

Semester: I
Course Code:OGOG7001

Max. Marks: 100

Instructions: Answer Strictly in chronological order. Draw diagram if so required. All Q are compulsory. QP has three pages.

SECTION A

S. No.		Marks	CO
1	Identify the reasons / business environment for global GTL growth.	3	CO2
2	Hydrocarbon policy: Identify with reasons two important aspect of Hydrocarbon Policy that has not been so successful. Hint : OVL, Infrastructure	3	CO3+C O4
3	Identify the reasons for implementation of Auto Fuel Policy in environment.	3	CO3+C O4
4	Concept of DCS that has three essential features explain each one of them with the examples of a down-stream Oil business	3	CO1 +CO2
5	Impact of currency fluctuation (Dollar Vs Re) on retail (domestic) price of MS, Diesel.	3	CO3+C O4
6	Conceptual difference between NELP & HELP	3	CO3
7	Detail of Off shore structures for production of Oil and Gas.	3	CO2
8	Role of SCADA and its benefit in transportation of Oil and Gas	3	CO2
9	Concept of trenching and burial philosophy in pipeline infrastructure.	3	CO1
10	Concept Field Development Plan in E&P and describe briefly the other activities	3	CO1

SECTION B

Q 11	As per the market position (Apply concept of contango / backwardation) , assess the current Oil scenario its impact in 2017 and 2018.	5	CO2+C O4
12	Concept of Gas hydrates for energy security. Write Brief note on World and Indian Scenario along with Challenges involved in development of Gas Hydrates in India.	5	CO3+C O4
13	What do you understand by hazards in the Industry (Hint: Pressure, Volume, Temp.) ? Identify various chemical hazards in a Refinery and Petrochemical plant? Apply & Illustrate with examples in each situation .	5	CO2+C O3
14	Analyze the Integrated approach of a Plant Life Cycle in an Oil and Gas installation	5	CO1+C O3

SECTION-C

Q 15	Oil and gas needs to be cleaned before it reaches any refinery. Explain the various operations and illustrate their role in the value chain?	10	CO1+C O2
16	What are the possible cause of accident in an Oil or Gas process plant before it goes for refining. Site examples and diagrams.	10	CO1
17	With four examples illustrate the Integration of IT and ERP application in Hydrocarbon field.	10	CO1+C O3

SECTION-D

<p>Q 18</p>	<p>A factory uses 100 Kiloliters diesel for standby generators every month. Price of HSD is Rs 60 per liter. The factory owner will switch to natural gas. The conversion from diesel to natural gas will be on heat equivalent basis. If the price of natural gas is Rs 1250 per mmbtu, answer the following questions:</p> <ol style="list-style-type: none"> What is the quantity of natural gas required per month in SCM units?) Calculate the amount of natural gas required in mmbtu per month?) What is the saving / extra cost per month for running on natural gas?) <p>[Use the following information:</p> <ul style="list-style-type: none"> • Calorific value of diesel is 10000 Kcal per kg • Calorific value of natural gas is 8500 Kcal per SCM • Specific gravity of diesel is 0.85 g/ml • 1 BTU = 252 calories <p>If you require any other data, make a reasonable assumption.]</p>	<p align="center">10</p>	<p align="center">CO2+ CO3</p>
<p>Case Study</p>	<p>Nord Stream 2 is a 1,200km-long offshore natural gas pipeline being constructed to connect Europe to the world’s largest reserves in Northern Russia. Russia’s state-owned Gazprom will own and operate the pipeline through its wholly-owned subsidiary Nord Stream 2. The budget for the construction of the pipeline has been estimated to be €9.5bn (\$11bn), with Gazprom investing more than half, and the remaining to be financed by Engie, OMV, Royal Dutch Shell, Uniper, and Wintershall. Nord Stream 2 is an expansion of the existing Nord Stream pipeline and is expected to supply energy to approximately 26 million households a year, with a capacity of 55 billion cubic metres (bcm). The energy delivered by the proposed infrastructure project will be equivalent to the amount of energy transported using between 600 and 700 LNG tankers. Scheduled for commission in 2019, the new pipeline is expected to deliver gas to European consumers for at least 50 years and contribute to European energy security.</p> <p>Nord Stream 2 pipeline route Nord Stream 2 is planned to follow the route laid down by the Nord Stream pipeline and run through the Baltic Sea from the St Petersburg region (Russia) to Baltic Coast in north-east Germany. It will supply gas from the vast natural gas field of Bovanenkovo in Northern Russia’s Yamal Peninsula, which is estimated to have 4.9 trillion cubic metres (tcm) of gas reserves. The pipeline will make a landing near Greifswald close to the German coast and will have no intermediate compressor station. The route will traverse the territorial waters through the Exclusive Economic Zone (EEZ) of five countries including Russia, Finland, Sweden, Denmark, and Germany.</p>		<p align="center">CO1+ CO2+ CO3+ CO4</p>

	<p>Details of the gas pipeline : The 1,200km pipeline will comprise twin-parallel lines running offshore on the bed of the Baltic Sea. With a total capacity of 55bcm of natural gas a year, the pipeline will be able to cover one-third of the new gas imports required in the next two decades. The two pipelines of the Nord Stream 2 will have a capacity of 27.5bcm a year each and will comprise 12m-long individual pipe joints. Each pipeline will be made of 100,000 coated steel pipes with 24t in concrete weight. The internal diameter of the pipeline will be 1,153mm (45in) and the wall thickness will be 41mm (1.6in).</p> <p>Marketing of gas : Gas from the pipeline will be transported to different markets within the EU. It is expected that approximately one-third of the gas reaching Germany will be transported to North-Western Europe via existing hubs. The remaining gas will be supplied to central, eastern and southern Europe and will add to the Central European Gas Hub in Baumgarten, Austria.</p> <p>Nord Stream 2 pipeline project timeline : Work on the feasibility study and preparatory stages of the project commenced in 2011, which was followed by the publication of the project information document in 2013. A shareholders agreement was signed in September 2015 by the participating entities. Delivery of the first pipes for the project was received in Germany in November 2016.</p> <p>The project received construction approvals in Russia, Sweden, Finland, and Germany as of August 2018. The permit for construction in Denmark is expected by the end of 2018. The offshore construction works for the pipeline started in the Gulf of Finland, with the use of pipe-laying vessel Solitaire in September 2018. Construction of the twin lines is expected to be completed by end of 2019.</p> <p>Contractors involved : Kvaerner was awarded a contract worth \$73m in 2017, for the civil, mechanical and piping works for onshore facilities at the export landfall of the pipeline in Russia.</p> <p>Europipe, Mülheim, United Metallurgical Company, Chelyabinsk Pipe-Rolling Plant, and Chelyabinsk were awarded contracts to supply steel pipes for the two pipelines in March 2016. The contract includes the delivery of 2,500km of large-diameter pipes weighing approximately 2.2Mt. Allseas was awarded a contract by Nord Stream to perform offshore pipe-laying works for the pipeline project in February 2017. The contract also includes the provision of pipe-laying vessels, Solitaire, Pioneering Spirit, and Audacia. Wasco Coatings Germany was contracted in September 2016 to provide concrete weight coating services and pipes for Nord Stream 2 project. In June 2017 Blue Water Shipping was awarded a \$46m sub-contract by Wasco Coatings for handling, storage, and transportation of the pipeline segments. The route of the pipeline circumvents certain nations such as Ukraine, which stand to lose high-transit fees. The route of the pipeline circumvents certain nations such as Ukraine, which stand to lose high-transit fees. Bokaalis-Van Oord was awarded the \$291m rock placement contract for the Nord Stream 2 pipeline project in July 2017. Saipem has been awarded the contract for providing the pipe-laying vessel C10, to be used during the construction of the pipeline.</p> <p>Controversies around Nord Stream 2 pipeline project : The project has been surrounded by controversies since its inception. Ukraine filed a lawsuit with the Energy Community Secretariat seeking action against the construction of the pipeline. It also appealed to the European Commission to terminate the gas project as it is against Ukraine's interest. The governments of ten European countries sent a letter to the European Commission stating that the pipeline project is against the interests of the EU. The countries involved are Bulgaria, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia.</p>		
Q19	Identify the reasons for the delay if any and specially Ukrain and other 10EU are against this project. Can this be resolved ?	10	