

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: International Energy Markets and Commercial Framework of Energy Industry

Semester: I

Program: MA EE

Time: 03 Hours

Course code: ECON 8003

Max. Marks: 100

Instructions: Answer all the questions in group A, B and D. Answer any two questions from group C.

SECTION A

2 X 10 = 20 Marks

Q1	Mention two assumptions that need to be satisfied to achieve efficiency outcomes in the energy sector	CO1
Q2	What is meant by economic dispatch?	CO1
Q3	How the energy industries manage the problems related to indivisibility of capital and excess capacity?	CO2
Q4	How do you calculate economies of scale?	CO2
Q5	What encourages the entry of new player in the energy market?	CO1
Q6	What is meant by spinning reserve	CO1
Q7	Show with the help of diagram how monopolization of energy sector leads to deadweight loss Mention the type of following cost function in the energy industry. Represent it with the help of a suitable diagram $C(Q) = c(q_1 + q_2) < c(q_1) + c(q_2)$	CO2
Q8	Show with the help of suitable diagram how losses occurs due to marginal cost pricing under a natural monopoly	CO3
Q9	Define capacity factor with respect to power plant	CO1
Q10	Is dollar depreciation has any impact on oil price and oil demand?	CO4
SECTION B (20 Marks)		
Q1	Discuss how competitive and monopoly forces operate in the energy sector market	CO5
Q2	Elaborate the reasons of price volatility of benchmark crude	CO3

Q3	Explain the different aspects of international petroleum market	CO4
Q4	Discuss the characteristics of electricity supply	CO1
SECTION-C		15 X 2 = 30 Marks
Q1	Analyze the market forces in the functioning of OPEC. What are the current problems in the functioning of OPEC? What are the solutions to these problems of OPEC	CO4
Q2	Discuss how indivisibility of capital changes the demand and supply conditions in the energy market	CO4
Q3	Explain the models of permanent natural monopoly and temporary natural monopoly in the energy market	CO2
SECTION-D		1 X 30 = 30 Marks
<p>IEA: Global oil supply will outpace demand throughout 2019</p> <p>Global oil supply will outpace demand throughout 2019, the International Energy Agency forecasted in its latest Oil Market Report. Since midyear, oil supply had increased sharply with gains in the Middle East, Russia, and the US more than compensating for falls in production in Iran, Venezuela, and elsewhere, IEA said.</p> <p>Global oil supply will outpace demand throughout 2019, the International Energy Agency forecasted in its latest Oil Market Report.</p> <p>Since midyear, oil supply had increased sharply with gains in the Middle East, Russia, and the US more than compensating for falls in production in Iran, Venezuela, and elsewhere, IEA said. New data show that the pace has accelerated, and this higher output, in combination with Iranian sanctions waivers issued by the US and steady demand growth, implies a stock build in this year's fourth quarter of 700,000 b/d, according to IEA.</p> <p>Already, oil stocks of countries in the Organization for Economic Cooperation and Development have increased for 4 continuous months, with products back above the 5-year average.</p> <p>Storage tanks are filling up as global oil supply far outpaces demand, prompting talk of a possible 1 million b/d production cut by members of the Organization of Petroleum Exporting Countries and certain other non-OPEC producers.</p> <p>ICE Brent prices hit a 4-year high of more than \$86/bbl at the beginning of October but have since fallen back to below \$70/bbl. Brent and West Texas Intermediate</p>		

futures curves have flipped to contango. Except for gasoline and naphtha, product prices did not match the drop in crude prices.

Supply

Since May, when US sanctions were announced, and Vienna Agreement producers began to unwind cuts, global oil output has soared by a net 1.8 million b/d.

The US, with its relentless growth, has provided more than 1 million b/d, Saudi Arabia has ramped up by 620,000 b/d, and Russia has increased by 445,000 b/d. Such record-setting rates have more than made up for declines from Iran (-480,000 b/d), Venezuela (-140,000 b/d), and seasonal declines in Canada (-200,000 b/d) and Kazakhstan (-100,000 kb/d).

In October, world oil output of 100.7 million b/d was 2.6 million b/d higher than a year ago. Non-OPEC producers accounted for much of the increase, although OPEC oil supply was up 380,000 b/d from a year ago.

Crude oil production from OPEC rose to 32.99 million b/d—the highest level since July 2017—as record levels from the UAE and Saudi Arabia more than made up for a further decline in Iran and Venezuela. Meantime, in the short term, supply from Iran could hold up better than expected after the US granted waivers to eight countries, including major buyers China and India.

“Next year, there is expected to be even less need for OPEC oil due to relentless growth in non-OPEC supply,” IEA said, adding that it had cut its forecast for demand for OPEC crude by 300,000 b/d to 31.3 million b/d in 2019.

For 2019, the agency raised its forecast for oil output growth from non-OPEC countries to 2.4 million b/d this year and 1.9 million b/d next year vs. its previous estimate of 2.2 million b/d in 2018 and 1.8 million b/d in 2019.

The US will lead output growth, IEA forecasts, estimating total US oil supply will rise by 2.1 million b/d this year and another 1.3 million b/d in 2019 from a current record of more than 11 million b/d.

Demand

In its monthly report, the agency left its forecast for global demand growth for 2018 and 2019 unchanged from last month at 1.3 million b/d and 1.4 million b/d, respectively, as weaker economy is largely offset by lower oil prices.

Oil demand is slowing in several non-OECD countries as the impact of higher year-on-year prices is amplified by currency devaluations and slowing economic activity.

Non-OECD oil consumption should increase by 950, 00 b/d in 2018, and the pace will accelerate to 1.1 million b/d in 2019. Notably, IEA's non-OECD demand forecast for 2019 has been revised down by 165,000 b/d compared to a month ago.

Asia remains the main source of growth, contributing 900,000 b/d in 2018 and 820,000/d in 2019, with China and India the dominant markets. IEA expected total oil demand growth in China to be 495,000 b/d in 2018, followed by a slower rate in 2019 of 380,000 b/d. Indian oil demand growth has more than doubled in 2018 to 255,000 b/d, although IEA expected a modest slowdown in 2019 to 215,000 b/d.

OECD demand is expected to increase by 355,000 b/d in 2018, slowing to 285,000 b/d in 2019.

OECD Americas oil demand is projected to increase by 445,000 b/d in 2018, supported by harsh weather conditions in the first quarter of this year, as well as booming industrial activity and the start-up of petrochemical projects in the US. The strong year-on-year increase in oil prices seen in 2018 is, however, affecting gasoline demand, which is forecast to contract by 30,000 b/d in 2018. More ethane crackers coming on stream and recently lower oil prices should continue to support OECD Americas growth of 200, 00 b/d in 2019.

OECD Europe's demand is less robust, and, after growth of 230,000 b/d year-over-year in this year's first quarter, there were declines of 100,000 b/d and 65,000 b/d in the second and third quarter. For the year, demand is set to decline by 5,000 b/d on very weak gas oil and naphtha deliveries, but a more favourable price environment is expected to support growth of 145,000 b/d in 2019. OECD Asia Oceania oil demand will post small declines in both 2018 and 2019.

Inventories

Inventories of oil in OECD countries rose counter seasonally by 12.1 million bbl in September to 2.875 billion bbl. For the third quarter, stocks rose 58.1 million bbl, or at a rate of 630,000 b/d, the biggest increase since 2015.

	<p>September's increase means OECD stocks are now likely to rise above the 5-year average when October data is finalized, for the first time since March when OPEC hit its target of reducing stocks to this level.</p> <p>In the first half of 2019, based on IEA's outlook for non-OPEC production and global demand, and assuming flat OPEC production (i.e. losses from Iran and Venezuela are offset by others), the implied stock build is currently 2 million b/d.</p>	
Q1	Analyze the demand factors and supply factors affecting global oil price based on the above case let.	CO4