**EAS 375**

**Lecture Questions**

**Lecture 4 - Origin of Oil**

1. Why was there some much interest in finding an abundant source of kerosene during the middle part of the 19th century?

Kerosene had become the prime source of energy.

2. Production and refining activities during the early days of the oil industry was in complete chaos. What did John D. Rockefeller in the United States and Marcus Samuels in Baku do to bring order to the industry during the latter part of the 19th century?

Rockefeller consolidated the market, which was a “mess”. Gave order.

3. What factor clearly emerged following World War I that changed the course of future wars?

Oil was necessary, also in wars.

4. In the oil industry what do the terms “upstream” and “downstream” mean?

Upstream is exploration and production. Downstream is oil transport and shipping, refining, distribution and retailing.

5. What is crude oil?

Mixture of many sizes and types of hydrocarbons molecules. Relative proportions of different hydrocarbon molecules and presence of sulfur.

6. Define the following

Light crude - API of 30 or higher

Heavy crude – API of 10 or less – greater viscosity, lower volatility, darker color

Sweet crude – less than 1% of sulfur – light crude, low sulfur, easier to refine

Sour crude – more than 1% of sulfur – heavy crude, high sulfur…

API index of crude – measure the density of crude oil

Viscosity of crude – resistance to flow

7. What does the term maturation mean?

Transformation of kerosene to oil.

8. What is meant by the term “oil window”?

Is the temperature range where oil forms.

9. If you drill an oil well and you find only gas, what does that tell you about the history of basin and the maturation of kerogene?

You know that you are below oil (in depth) or temperature are too high.

10. Define the following terms:

Migration – movement of oil from source rocks to reservoir rocks

Reservoir rock, include the differences between porosity and permeability in you answer:

Rock with adequate porosity (% of open space in a rock) and permeability (connection between open space) to function as a petroleum reservoir

Trap – geologic feature where oil accumulates

11. Sketch an oil trap showing the distribution of oil, gas, and water.

12. What is reservoir pressure and why is it important in the production of crud

It usually reflects the depth of sea floor. Initial pressure gives an idea of how much of the field will produce.