

**Musrata University**  
**Petroleum Engineering Department**  
**Petroleum Geology & Exploration**  
**Final Exam**

26/01/2014

Time: 3 hours

Instructor: Atya M. Awinat

**Question One.**

Fill the gaps:

1. The three basic layers of the Earth are ..... and .....
2. The earth's crust is composed of three basic rock types .....  
..... and .....
3. In chemical terms a *hydrocarbon* is a compound containing the elements .....  
and ..... with other materials often contain .....  
..... and .....
4. Crude oils are a complex mixture of organic compounds including different compound classes:  
..... and.....
5. Primary migration is ..... while secondary  
migration is.....
6. Source rock is .....
7. The main source rock maturation indicators are .....  
..... and .....
8. Oil is generated at temperatures of .....° to ..... °C, which are typically found at  
depths of .....to..... km.
9. In the Carbonate reservoirs the porosity is called ..... While in  
the clastic reservoirs it is called .....
10. For a trap to be efficient and commercially viable, a large variety of factors have to be  
considered. These include: 1..... 2 .....  
3..... 4 .....

**Question Two.**

What is Kerogen? Explain the main types of kerogen with a sketch where possible?

بالتالي الأسئلة هي كالتالي

**Question Three.**

Explain the main conversion steps of the organic matter to the hydrocarbon? What are the main factors influencing the quality of the source rocks and the criteria for a sedimentary rock to be an effective oil source?

**Question Four.**

Explain the main properties required from a rock to be a viable reservoir rock? Explain the major factors affecting the clastic rock permeability?

**Question Five.**

From the two layers model below calculate:

1. The Acoustic Impedance ( $Z$ ).
2. The Reflection Coefficient ( $R_c$ ).
3. The Transmission Coefficient ( $T_c$ ).

