



Instructions to candidates

Duration: One (01) Hour

Number of questions: Essay 04

Answer All Questions

Mark allocation: 100 Marks

Illustrate your answers with sketch/diagrams where necessary

1. a). What are the problems that should be answered with petroleum system modeling, before planning a drilling process? [05 marks]
- b). State main factors that should be considered when conducting drilling on the sea bed. [06 marks]
- c). How do you select offshore drilling rigs depending on the depth? Tabulate the drill rig type and suitable depth. [14 marks]
2. Briefly explain following key elements in the sedimentary basins related to *Petroleum Geology*
 - Source Rock
 - Maturation of Source Rock
 - Reservoir Rock
 - Seal
 - Migration of Oil and Gas [5 x 5 = 25 marks]
3. a). What is a well log? [04 mark]
- b). Briefly discuss the following.
 - Mud logging
 - Neutron porosity logging
 - Resistivity logging [07 x 3 = 21 marks]
- a). What do you mean by *Seismic Waves*? State its two types. [05 marks]
- b). What is *Two Way Travel Time* in seismic surveys? [03 marks]
- c). Compare and contrast 2D seismic surveys and 3D seismic surveys. [10 marks]
- d). What are the types of “noise” that you would expect to encounter during a seismic survey? Give two examples each. [07 marks]