

**DEPARTMENT OF SCIENCE LABORATORY TECHNOLOGY**  
**MICROBIOLOGY OF BIO AND FOSSIL FUELS ( STM 514)**  
**RAIN SEMESTER EXAMINATION 2013/2014 SESSION**  
**INSTRUCTION: ANSWER FOUR QUESTIONS ONLY**  
**TIME: 3 HOURS    DATE: OCTOBER 3, 2014**

- 1(a) Describe the nature, source and components of petroleum.
- (b) List 5 hydrocarbon-utilizing microorganisms.
- 2(a) Discuss the effect of oil pollution on marine, freshwater and soil ecosystems.
- (b) Explain the effects of petroleum hydrocarbons on living matter.
- 3(a) What is bioremediation of polluted sites?
- (b) List the factors that should be considered before deciding the remediation strategy of crude oil contaminated site.
- 4(a) Write short notes on the following terms:
- i. Biomass
  - ii. Bioenergy
  - iii. Renewable energy
  - iv. Non-renewable energy
  - v. Biogas
- (b) Describe the formation of the three types of fossil fuels.
- 5(a) Explain the sources of energy that are renewable and the ones that are not renewable.
- (b) Discuss the sources of energy that are most commonly used.
- (c) What are the problems related to the most commonly used fuels.
- 6(a) Describe the mechanism of Anaerobic digesters.
- (b) Explain the meaning of biomass to bioenergy system.