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**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS FOR THE DIPLOMA IN BUILDING AND CIVIL ENGINEERING**

**SECOND YEAR SECOND SEMESTER 2015/2016 ACADEMIC YEAR**

**CENTRE: MAIN CAMPUS**

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**COURSE CODE: TBC 2227**

**COURSE TITLE: WATER AND WASTE WATER QUALITY ANALYSIS**

**EXAM VENUE: LR 17 STREAM: DIP BUILD & CIV ENGIN**

**DATE:21/12/16 EXAM SESSION: 9.00 – 10.30 AM**

**TIME: 1 ½ HOURS**

**Instructions**

1. **Answer question 1 (Compulsory) and ANY other two questions**
2. **Candidates are advised not to write on question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

**QUESTION ONE**

1. Differentiate between the following (**5Marks**)
2. Chemical Oxygen Demand (COD)
3. Biological Oxygen Demand (BOD)
4. List at least ten (10) quality parameters which one may find in a water quality standards (**10Marks**)
5. Explain the following (**6Marks**)
   1. Sampling schedule for water quality monitoring
   2. Residual Chlorine
   3. Role of Kenya Bureau of Standards (KEBS) in water quality monitoring
6. Discus the factors that affect the self – purification of streams (**10 Marks**)

**QUESTION TWO (20 Marks)**

Discus very briefly any ten key mandates of Water Services Regulatory Board (WASREB) as a lead agency for control of water quality in Kenya

**QUESTION THREE (20 Marks)**

Discus the general characteristics (physical, chemical and biological) of **Sewage**

**QUESTION FOUR (20 Marks)**

1. List the basic requirements of portable water (**3Marks**)
2. What are the factors that influence the quality of groundwater? (**4Marks**)
3. List the natural and human activities that negatively affect the quality of surface water (**6Marks**)
4. In water quality monitoring (sampling and tests)
   1. What is the criteria for choosing frequency of water sampling (**3marks**)
   2. What is the role of a Water Service Provider? (**4Marks**)

**QUESTION FIVE (20 Marks)**

Discus the importance of quality control and analysis in water service delivery