JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

THIRD YEAR SECOND SEMESTER UNIVERSITY EXAMINATION FOR FOR B.SC. SOIL SCIENCE

2017/2018 ACADEMIC YEAR

COURSE CODE: ALS 3321

COURSE TITLE: SOIL, WATER AND PUBLIC HEALTH

EXAM VENUE: **GROUP: YEAR 3 SEMESTER 2**

DATE: **EXAM SESSION: REGULAR**

TIME: 2 HOURS

INSTRUCTIONS:

1. **Answer ALL questions in section A and ANY other 2 Questions in section B.**
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.**

SECTION A [30 MARKS]

Answer ALL questions from this Section.

1. Describe any THREE essential public health services that provide framework for self-assessment instrument **(6 Marks)**
2. Describe the meanings of the following concepts as applies in the understanding of Soil Contamination: (i) Soil contaminant retention (ii) Soil contaminant release (iii) Microbial degradation **(6 Marks)**
3. Giving relevant examples in each case, distinguish between Natural and Anthropogenic input sources of trace elements **(6 Marks)**
4. Briefly describe SIX general purposes for water quality monitoring **(6 Marks)**
5. Briefly describe the THREE major sources of Water Pollution **(6 Marks)**

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

6. Discuss how the following contamination agents may culminate into negative health effects on human health: (i) Heavy metals (ii) Organic chemicals (iii) Airborne dust (iv) Soil pathogens **(20 Marks)**
7. The chemical elements in soil (trace elements) occur at concentrations of less than 100 mg/kg and are important to study due to their effects on plants, animals and humans. Discuss Trace Elements under the following themes: (i) Sources, (ii) Mobilization process and (iii) Characteristics **(20 Marks)**
8. (a) Explain the concepts of Groundwater and Surface Water quality **(10 Marks)**
   (b) Discuss any FOUR types of water Pollution **(10 Marks)**
9. **T**he decline in **soil** quality can be regained by site remediation process. Discuss in details the kinds of data required while planning contaminated site remediation **(20 Marks)**

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