



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

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

2019/2020 ACADEMIC YEAR

COURSE CODE: ALS 3321

COURSE TITLE: Soil, Water and Public Health

EXAM VENUE:

GROUP: BSc. (Soil Science)

DATE:

EXAM SESSION:

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. Briefly describe any FIVE essential public health services that provide framework for self-assessment instrument **(4 Marks)**
2. Explain the following concepts as applied in the understanding of Soil Contamination:
 - a. Soil contaminant retention **(2 Marks)**
 - b. Soil contaminant release **(2 Marks)**
 - c. Microbial degradation **(2 Marks)**
3. Briefly describe the two broad ways in which polluted soil can be decontaminated **(4 Marks)**
4. Giving relevant examples in each case, distinguish between natural and anthropogenic input sources of trace elements **(4 Marks)**
5. Distinguish between the following terms:
 - a. Saline and Sodic soils **(2 Marks)**
 - b. Point source and non-point source water pollution **(2 Marks)**
6. In view of soil and water sciences, outline FOUR processes of public health risk assessment **(8 Marks)**

SECTION B [40 MARKS]

Answer ANY TWO questions from this Section.

7. Discuss how the following contamination agents may culminate into negative health effects on human health:
 - a. Heavy metals **(5 Marks)**
 - b. Organic chemicals **(5 Marks)**
 - c. Airborne dust **(5 Marks)**
 - d. Soil pathogens **(5 Marks)**
8. The 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)**
9.
 - a. Explain the concepts of groundwater and surface water quality **(10 Marks)**
 - b. Discuss any FOUR types of water Pollution **(10 Marks)**