



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2020/2021
FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
ENVIRONMENTAL SCIENCE

ENS 131: ENVIRONMENTAL CHEMISTRY

DATE: Tuesday, 16th March 2021

TIME: 2.00p.m-4.00p.m

INSTRUCTIONS:

ANSWER QUESTION ONE AND ANY OTHER THREE

1. a) Outline five safety measures employed in a laboratory. (5 Marks)
- b) Distinguish between enthalpy and entropy. (4 Marks)
- c) Briefly describe the chemical properties of alkali metals. (4 Marks)
- d) Explain four periodic trends of halogens. (8 Marks)
- e) Outline the sources of various nitrogen oxides. (4 Marks)
2. a) State three differences between oxidation and reduction reactions. (6 Marks)
- b) Assign oxidation numbers to the elements in each of the following:
 - i) $Na_2Cr_2O_7$
 - ii) $NaHSO_4$
 - iii) C_6H_5CHO (9 Marks)
3. a) Briefly describe two types of chlorofluorocarbons and their uses. (8 Marks)
- b) Discuss the impact of CFCs on the ozone. (7 Marks)
4. Using well labelled diagrams, describe the processes involved in endothermic and exothermic reactions. (15 Marks)
5. a) Explain the properties of sulfur dioxide and sulfur trioxide. (6 Marks)
- b) Describe the formation and discuss effects of acid rain caused by atmospheric oxides. (9 Marks)

INVOLVEMENT IN ANY EXAMINATION IRREGULARITY SHALL LEAD TO DISCONTINUATION