Reg No:...................
Name :...................

First Semester FYUGP Chemistry Examination
November 2024 (2024 Admission onwards)
KU1DSCCHE114 (BASIC CONCEPTS IN THEORETICAL AND ENVIRONMENTAL CHEMISTRY)
(EXAM DATE : 06-12-2024)

Maximum Marks : 50

Time : 90 min

Part A (Answer any 6 questions. Each carries 2 marks)

1. What is the Balmer series? In which region of the electromagnetic spectrum does the Balmer series appear?   2

2. Write Rydberg formula and explain the terms.   2

3. Give the general electronic configuration of f- block elements ?   2

4. What are the favorable condition for the formation of an ionic compound?   2

5. What is Itai Itai disease? How is it caused?   2

6. Define Normality with equation and write the terms.   2

7. Name any four laboratory safety signs and their meanings.   2

8. Why is it important to be aware of chemical hazards?   2

Part B (Answer any 4 questions. Each carries 6 marks)

9. Derive de Broglie relation. What is its significance?   6

10. What are the general salient features of the long form of the periodic table?   6

11. Describe the shape and bond angles in methane. (3)
    Explain the shape of ethane and how it differs from ethylene. (3)   6

12. Discuss how biological magnification can lead to increased toxicity levels in top predators within an aquatic food web.   6

13. Explain the principle of acidimetry and alkalimetry with examples   6

14. What are the first aid treatments for a person who suffers (i) skin contact (ii) eye contact with phenol   6

Part C (Answer any 1 question(s). Each carries 14 marks)

15. (a) Explain in detail the major water pollutants- sources, effects and control measures   7
    (b) Describe causes, consequences and control methods for i) acid rain ii) global warming   7

16. (a) Compare and contrast valence bond theory and molecular orbital theory using H_2, C_2, and B_2 as examples.   7
    (b) Apply VSEPR theory to predict the shapes of the following molecules: NH_3, PCl_5, SF_6, and ClF_3.   7