Reg No:..... K24FY1420(C)
Name :.....

First Semester FYUGP Chemistry Examination
November 2024 (2024 Admission onwards)
KU1DSCCHE114 (BASIC CONCEPTS IN THEORETICAL AND ENVIRONMENTAL CHEMISTRY)

(EXAM DATE : 06-12-2024)

Time : 90 min Maximum Marks : 50

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 configeration 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

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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

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