Reg No:..... K24FY 1420 (B)
Name :.....

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

(DATE OF EXAM: 4-12-2024)

Time : 90 min Maximum Marks : 50

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

1. Why does the hydrogen spectrum consist of different series of lines? 2
2. Distinguish between the terms orbit and orbital. 2
3. Among Cl and Cl- which is larger and why? 2
4. Define effective nuclear charge and screening effect 2
5. What is the shape of boron trifluoride (BF_3)? Explain using VSEPR theory. 2
6. Define biotic and abiotic components 2
7. The true value of Chloride ion concentration in a sample of water as determined by highly sophisticated techniques is 25 ppm. Suppose a person arrives at a value of 24.5 ppm for the same measurement by a conventional method. Calculate the relative error in percentage. 2
8. What are the first-aid measures for cut by glass? 2

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

9. Explain the distinction between an orbit and an orbital. 6
10. Explain the terms, screening effect and effective nuclear charge. 6
11. Compare and contrast the hybridization of carbon in methane and ethylene. 6
12. Demonstrate how you would conduct a water quality test using BOD and COD methods. What steps would you take? 6
13. What is the difference between accuracy and precision in the context of measurement? 6
14. Discuss the hazardous Symbols and Signs in the Physical and Chemical laboratories. 6

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

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15. (a) Describe causes, consequences and control methods for i) acid rain ii) global warming 7

(b) Comment on the sources, adverse effects, and control measures of radiation pollution. 7

16. (a) Explain the concept of hybridization and its role in determining molecular geometry by using CH_4, C_2H_4, and C_2H_2 as examples. 7

(b) Explain the shape of organic molecules methane, ethylene, and acetylene using hybridization. 7

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