B.M.S COLLEGE FOR WOMEN AUTONOMOUS
BENGALURU – 560004

END SEMESTER EXAMINATION – SEPTEMBER / OCTOBER 2022

B.Sc - II Semester
Analytical, Physical & Organic Chemistry-II

Course Code: CHE2DSC02   **QP Code: 2014**
Duration: 2 ½ Hours   **Max marks: 60**

Instructions: 1.   **Answer all the Sections.**

2.   **Write chemical equations and diagrams wherever necessary.**

SECTION-A

Answer any **five** of the following questions. Each question carries **two** marks   **(5x2=10)**

1.   Give the principle of Precipitation titrations

2.   State law of constancy of interfacial angles

3.   Calculate the most probable velocity of oxygen at STP

4.   State Nernst distribution law

5.   Define limit of detection

6.   Mention the factors which affect SN^1 reaction.

SECTION-B

Answer any **four** of the following questions. Each question carries **five** marks   **(4x5=20)**

7.   Explain the estimation of hardness of water by EDTA titration method   **(5)**

8.   a.   Discuss the mechanism for the formation of benzyne intermediate with suitable example
     b.   Mention the electrophiles in nitration and sulphonation of benzene   **(3 + 2)**

9.   a.   Define compressibility factor. How does Z vary with pressure
     b.   Write Maxwell-Boltzmann equation for 1 molecule of a gas   **(3 + 2)**

10. a.   Prove that a multiple extraction with the same amount of solvent is more beneficial than a single extraction
     b.   Mention any two applications of distribution law   **(3 + 2)**

11. a.   Explain any three factors responsible for choosing back titration method
     b.   Define critical temperature of a gas   **(3 + 2)**

12. a. Discuss the stereochemistry of SN^2 reaction

    b. Calculate the number of particles present in face centered cubic unit cell **(3 + 2)**

SECTION-C

Answer any **three** of the following questions. Each question carries **ten** marks **(3x10=30)**

13. a. Define co-precipitation and post precipitation in gravimetric analysis

    b. Write the structure of: (i) 8-hydroxyquinoline (ii) Dimethyl glyoxime (DMG)

    c. What are Adsorption Indicators? Give an example **(4+4+2)**

14. a. Explain the mechanism of Friedel Craft's alkylation of benzene

    b. Explain the orienting influence of –OH group in phenol

    c. What is ipso substitution? Give example **(4+4+2)**

15. a. How is critical volume of a gas determined experimentally?

    b. Define collision number and collision frequency. Explain the terms involved

    c. State the Law of Corresponding States **(4+4+2)**

16. a. Mention any four differences between amorphous and crystalline solids

    b. Derive Bragg's equation $n\lambda=2d\sin\theta$

    c. What is Ebullioscopic constant? **(4+4+2)**

17. a. Give any four differences between SN^1 and SN^2 reaction

    b. Define inversion temperature with an example. How is it related to van der waals constants?

    c. Define axis of symmetry in a crystal? Mention the different axes of symmetry possible in crystals **(4+3+3)**

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