SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - I
20UNDAT1001 - Allied Chemistry- I

Total Duration : 2 Hrs 30 Mins. Total Marks : 60

Section A

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Distinguish the properties of strong and weak electrolyte with suitable examples.
2. a) Mention the hybridization and geometry of [3 +2]
   i) Methane ii) Ethane iii)Acetylene
   b) Arrange the following compounds in the increasing order of their C-C bond length.
   Methane, ethane, ethyne
3. How would you effectuate the following conversion (provide the chemical equation) ? [2 x 2.5]
   a) Ammonium mucate to pyrrole
   b) Acetylene to pyrrole
4. Illustrate the phenomenon of fluorescence and phosphorescence using Jablonski diagram and suitable example.
5. Write a short note on water gas and semi-water gas.
6. Describe the following classification of reactions with suitable example. [2 x 2.5]
   a)Addition b) Substitution
7. Provide any five chemical properties of furan with appropriate chemical equation.
8. Describe the preparation and uses of urea

Section B

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. a) Derive Henderson equation and explain its applications. [7]
   b) Explain " Common ion effect" [3]
10. a) Define temporary and permanent hardness. [4]
    b) Mention the disadvantages of hard water. [2]

Contd...

c) Explain the following process of purification of water [4]

i) Reverse osmosis

ii) Using UV

11. a) Define the following terms with suitable example. [3 x 2]

i) Electrophile

ii) Free radical

iii) Condensation reaction

b) Illustrate the nitration of benzene with appropriate mechanism.

12. Illustrate the preparation and chemical properties of following compounds with suitable chemical equations. [2 x 5]

i) Pyridine

ii) Thiophene

13. a) State Grothus-Draper Law and Stark-Einsteins law. [4]

b) Define the following terms/process with suitable example. [3 x 2]

i) Quantum yield

ii) Chemiluminescence

iii) Photosynthesis

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