**UUCMS.No** | | | | | | | | | | |

# B.M.S COLLEGE FOR WOMEN

**BENGALURU – 560004**

**I SEMESTER END EXAMINATION – JAN/FEB-2024**

**B.Sc- CHEMISTRY:**
**ANALYTICAL, PHYSICAL, INORGANIC AND ORGANIC CHEMISTRY**
**(NEP Scheme 2022-23 onwards F+R)**

**Course Code:CHE1DSC01** **QP Code:1014**
**Duration: 2 ½ Hours** **Max. Marks:60**

***Instructions: 1. Question paper has three Parts. Answer all the parts.***
***2. Write chemical equations and diagrams wherever necessary.***

## PART– A

**Answer any FIVE of the following questions. Each question carries TWO marks. (5X2=10)**

1. Mention any two precautions to be taken while handling organic solvents.
2. What is the electronic configuration of elements with atomic number 16 and 24.
3. Which is smaller in size: an anion or its parent atom? Give reasons.
4. What is heterolytic cleavage? Give an example.
5. Calculate the mean of the following data: 10.4,10.8,10.3,10.5,10.7.
6. Explain the term Laplacian operator.
7. What are p-block elements? Write the general electronic configuration of p-block elements.

## PART– B

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

8.Explain Sampling. Discuss the methods of sampling for liquids. (5)

9.a). Derive de-broglie equation of matter waves..
b). Calculate the wavelength of de-broglie matter wave of an object having mass 0.2kg, moving with a velocity of 12.5m/s.($h=6.026\times10^{-34}$ Js) (3+2)

10.a). Discuss the important characteristic properties of d-block elements.
b). Define Ionisation enthalpy. (3+2)

11.a). State and illustrate Huckel's rule.
b). Explain Wurtz reaction with an example. (3+2)

12.a). Define Normality. Calculate the Normality of $100cm^3$ of a solution containing 4.9g of $K_2Cr_2O_7$. Eq. Wt of $K_2Cr_2O_7 = 49$.
b). State and explain Hund's multiplicity rule (3+2)

13.a). Arrange the hydrides of group-17 in the increasing order of
(i) Acidic strength (ii) Stability (iii) Reducing nature.
b). What is a conjugated diene. Give an example. (3+2)

**PART– C**

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

14.a). Mention the different types of analytical techniques.
b). What are the advantages of instrumental methods over analytical methods.
c). Define a primary standard solution. Give an example. (4+3+3)

15.a). Derive Schrodinger's time independent wave equation.
b). Write the significance of principle and magnetic quantum number. (6+4)

16.a). Discuss the hydrides of group 13 and group 15.
b). Define atomic radii. How does it vary across a period and down a group.
c). Mention any two uses of Ammonia. (4+3+3)

17. a). What happens when (i) HBr is added to ethyne.
(ii) propene is subjected to ozonolysis.
b) Explain the mechanism of chlorination of methane.
c). State Markownikoff's rule. (4+4+2)

18.a). Explain $E_1$ mechanism with an example.
b). Electronegativity of Carbon in $C_2H_2$ is greater than $CH_4$. Give reason.
c). Find all the values of l and m when n=3.
d). Explain determinate Errors. (3+2+2+3)

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