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SIS - N 061 B-14
B.Sc. Ist Semester Degree Examination
Chemistry
Paper - I
(New)

Time : 3 Hours Maximum Marks : 80

Instructions to the Candidates :

i) Section A is compulsory

ii) All the sections contain questions from Organic, Inorganic, physical Chemistry.

Section - A

Answer all the questions. **(15×1=15)**

1 Give de - Broglie equation

2 State Pauli's exclusive Principle

3 Define modern - periodic law

4 What are d block elements?

5 Write the structure of XeF_4

6 What is angle strain?

7 Define the term 'Bond length'

8 What are free radicals?

9 What are diastereo isomers?

10 Define Nucleophiles

11 What is meant by free path?

12 Define 'Average Velocity'.

13 What is meant by Parachor?

14 Define 'Molar refractivity'.

15 Define unit Cell

Section - B

Answer any five questions **(5×5=25)**

16 What are quantum numbers? Discuss the significance of each quantum number. **(5)**

17 Describe the classification of elements s, p, d and f in a periodic table. **(5)**

18 Give the preparation and properties of XeF_2 **(5)**

19 Write a note on Inductive effect. **(5)**

20 Explain Baeyer's strain theory. **(5)**

21 Derive the expressions for Critical constants by using Vander Waal's equation. **(5)**

22 How do you determine the viscosity of liquid by using Ostwald's Viscometer? **(5)**

Section - C

Answer any Four of the following **(4×10=40)**

23 a) Explain the variation of atomic radius along the period and down the group. **(5)**

b) Give the applications of noble gasses. **(5)**

24 a) Explain the factors affecting the ionization energy. **(5)**

b) The size of the cation is less than original atom & size of the anion is more than the original atom give reason. **(5)**

25 a) Explain SP^3 hybridization by taking methane as example. **(5)**

b) Discuss the formation and stability of Carbon ion (- $\overset{\ominus}{\underset{|}{C}}$ -) **(5)**

26 a) Write any two preparations of alkanes **(5)**

b) Explain the mechanism of Walden Inversion. **(5)**

27 a) What is isotherm? Explain the isotherm of carbon dioxide? **(5)**

b) Explain the application of Parachor in elucidating the structure of Benzene. **(5)**

28 a) Derive Bragg's equation **(5)**

b) What are the differences between crystalline and amorphous substances? **(5)**