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Paper Name: Basics of Inorganic Chemistry

Paper Code: BCH-DSC101

Time: 3 hours *2½ hours*

Maximum Marks: 60

Note: This paper has 3 sections A, B, and C, Attempt all the three sections

Section A: Answer all the questions; Section B: Answer any 2 out of 4; Section C: Answer all the questions, each question has an internal choice

SECTION A

Very Short Type Questions

(10*2= 20 marks)

Q. No	Question	Marks	BTL-	CLO	PLO
1	Discuss why Li shows anomalous behaviour.	2	2	2	2
2	Why, do alkali metals give blue colour in liquid ammonia? Give chemical reaction.	2	3	2	3
3	Explain back bonding in BF ₃ molecule.	2	3	3	3
4	Give reason (s); the electron affinity of Cl is higher than other elements of group 17.	2	2	3	2
5	What is the inert pair effect? Explain by giving example.	2	3	3	2
6	SiO ₂ is solid but CO ₂ is a gas. Explain.	2	2	2	2
7	Define the terms: Polarizing power, Polarizability of ions.	2	2	2	2
8	SF ₄ exists while OF ₄ does not. Explain	2	2	3	2
9	Why, LiCl is covalent while NaCl is ionic. Explain.	2	2	3	2
10	Explain the catenation property of carbon. How does catenation tendency vary in Group 14 elements?	2	3	2	2

SECTION B

Long Type Questions

(2*10= 20 marks)

Q. No	Question	Marks	BTL-	CLO	PLO
1	a) What is Diagonal relationship? Why do beryllium and aluminium resemble each in their properties? b) Why does Be ²⁺ show a stronger tendency to form complexes. Explain.	05 05	3	3	2
2	Describe the preparation of sulphuric acid by contact or chamber process. Give its structure.	10	4	3	3
3	Give the preparation, properties and structure of the following: i) Cl ₂ O ii) Cl ₂ O ₆ iii) Cl ₂ O ₇	10	4	3	3
4	What are interhalogen compounds? Discuss the structure of various types. Why are interhalogen compounds more reactive than halogens? Explain.	10	3	3	3

SECTION C

Short-Type Questions

(4*5= 20 marks)

Q. No	Question	Marks	BTL-	CLO	PLO
1	What are electron-deficient compounds? Give the structure of the B ₂ H ₆ molecule. <i>Or</i> What are silicates? Give the structure of each type of silicate.	05	04	03	03

2	Why is borazine called inorganic benzene? Explain by giving a reason. Or Draw the structure of the following ions: i) SO_5^{2-} ii) $\text{S}_2\text{O}_7^{2-}$ iii) $\text{S}_2\text{O}_8^{2-}$	05	04	03	03
5	Explain carbonates and bicarbonates of s-block metals. Or Discuss Fajan's rules for covalent character in ionic compounds. Giving suitable examples.	05	03	03	03
7	What are pseudo halogens? Explain giving examples. Or Discuss the structure of the following: i) ICl_2^- ii) ICl_4^-	05	03	02	02
