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SB—17—2022

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (Fifth Semester) EXAMINATION

MAY/JUNE, 2022

(CBCS/New Pattern)

CHEMISTRY

(Paper—XIII) (B2)

(Physical and Inorganic Chemistry)

(Wednesday, 8-6-2022)

Time : 10.00 a.m. to 12.30 p.m

Time— 2½ Hours

Maximum Marks—40

N.B. :— (i) Attempt All questions.

(ii) Use of logarithmic table and non-functional calculator is allowed.

1. Solve any *three* of the following : 15

- (a) State and explain polymerisation of CrO_4^{2-} anion.
- (b) Describe 1 : 6 (Octahedral Heteroatom) polyanions with suitable example.
- (c) Explain in brief 2 : 18 (Tetrahedral Heteroatom) polyanions.
- (d) Discuss isolobal fragments upon polymerisation gives isostructural molecules.
- (e) Explain $\text{Fe}(\text{CO})_4$, $\text{Ni}(\text{CO})_3$ organometallic fragments are isolobal with organic fragments and S atom.

2. Answer any *three* of the following : 3×5=15

- (a) Give the construction and working of dropping mercury electrode in detail.
- (b) Write a note on Half -wave potential and its determination.
- (c) Explain effect of temperature on paramagnetic, diamagnetic and ferromagnetic substances.

P.T.O.

- (d) Define ideal solution and derive Gibbs Duhem Margules equation.
- (e) State and derive Raoult's law.
3. Solve any *two* of the following : 10
- (a) Write note on activity of a component in ideal solution.
- (b) Give thermodynamics of ideal solution.
- (c) Explain magnetic properties of substances.
- (d) Explain any *two* applications of polarography in detail.