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GA—34—2023

FACULTY OF SCIENCE

B.Sc. (Fourth Semester) EXAMINATION

APRIL/MAY, 2023

(New Course)

CHEMISTRY

Paper—IX

(Physical and Inorganic Chemistry)

(Thursday, 27-4-2023)

Time : 2.00 p.m. to 4.00 p.m.

Time— Two Hours

Maximum Marks—40

N.B. :— (i) Attempt All questions.

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

1. Solve any *three* of the following : 15
 - (a) What are interhalogen compounds ? Explain structure of XY type of interhalogen compound.
 - (b) What are oxyacids of halogen ? Explain the structure of perhalic acid.
 - (c) Explain the structure of Cl_2O and write its uses.
 - (d) Define Carbide. Explain its classification.
 - (e) Write a short note on Zeolite.
2. Solve any *three* of the following : 15
 - (a) Derive equation for rate constant of second order chemical reaction for equal concentration of reaction and write unit of rate constant of second order reaction (A=B).
 - (b) The half-life period of first order reaction is 15 minutes. How long will it take for completion of 80% of reaction ?

P.T.O.

- (c) Explain the Debye-Huckel theory of strong electrolyte.
- (d) State Kohlrausch's law and explain its any *two* applications.
- (e) State and explain Lambert-Beer's law.
3. Solve any *two* of the following : 10
- (a) Explain any *two* methods for determination of order of chemical reaction.
- (b) The resistance of 0.02 N solution of salt was found to be 1.5×10^3 ohm. Calculate the specific conductance of solution, if the cell constant is 1.1 cm^{-1} .
- (c) Explain advantages of conductometric titrations.
- (d) What is quantum yield ? Describe experimental determination of quantum yield.