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Total No. of Questions : 10]

[Total No. of Printed Pages : 4

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Pharm. Chemistry—II (Physical Chemistry)

(B. Pharmacy, 2nd Semester, 2063)

Time : 3 Hours]

[Maximum Marks : 80

Note :- This paper consists of *three* Sections. Section A is compulsory. Do any *Four* questions from Section B and any *Three* questions from Section C. Log tables and graph paper could be provided on demand.

Section—A

Marks : 30

1. Define the following :

(a) Boyle's law.

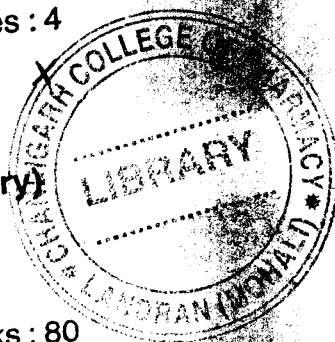
(b) Dipole moment.

(c) Fluorescence.

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(2)

- (d) Catalysis and autocatalysis.
- (e) Molar extinction coefficient.
- (f) Adsorption Isotherm.
- (g) Optical activity.
- (h) Viscosity.
- (i) Joule-Thomson effect.
- (j) Fugacity.
- (k) Raoult's law.
- (l) Reversible process.
- (m) Mean Free path.
- (n) Chemiluminescence.
- (o) Schrodinger wave equation.

Section-B

Marks : 5 Each

2. Explain Debye and Huckel theory of strong electrolytes.
3. Explain activated complex theory of bimolecular reactions.

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4. Write a short note on absolute temperature scale.
5. The intensity of a monochromatic radiation is reduced to 1/4th of the initial value after passing through 10 cm length of a solution of 0.08 molar concentration of an absorbing substance. Determine the molar extinction coefficient of the substance.
6. Explain Langmuir theory of adsorption. Derive Langmuir adsorption isotherm.

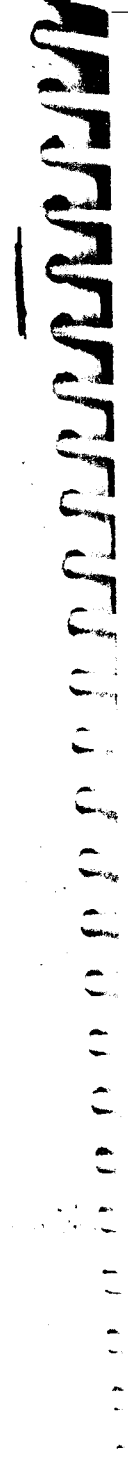
Section-C **Marks : 10 Each**

7. Derive thermodynamically the Clapeyron and Clausius equation and discuss its significance.
8. (a) Calculate the entropy change in the melting of 1 kg of ice at 0°C in SI units.

(Heat of fusion of ice = 80 cal g⁻¹)

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(4)

- (b) What do you understand by Helmholtz free energy and Gibbs free energy ? Derive the relation between the two.
9. State and explain Nernst distribution law. Explain its use in process of extraction and study of complex formation.
10. What is Raoult's law ? Describe the principle and procedures of ebullioscopic method for determination of molecular weights.

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