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B.PHARM
(SEM-II) THEORY EXAMINATION 2017-18
PHARMACEUTICAL CHEMISTRY-III
(PHARMACEUTICAL PHYSICAL CHEMISTRY)

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. Give the units of surface tention and viscosity.
b. Define molecular orbitals and Parachor.
c. Define enthalpy and internal energy.
d. What is specific rotation?
e. Differentiate between physical adsorption and chemical adsorption.
f. Define term degree of freedom with suitable example.
g. Write numerical definition of entropy.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. Define hybridization. Explain the hybridization of methane, ethane and ethyne.
b. Explain joule Thomson effect in detail.
c. Write in brief about Debye-Huckel theory to explain conductance of strong electrolytes.
d. Derive Ostwald's dilution law of weak electrolytes.
e. Explain Langmuir and Freundlich adsorption isotherm.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) What is absolute temperature scale? Discuss conversion of temperature between different scales.
(b) Explain **first** order reaction kinetics in detail. Also discuss the half life for first order reactions.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) Explain heat of reaction, heat of formation, heat of neutralization and heat of solution with suitable example.
(b) What is distribution law? Give its limitation. How is distribution law modified if one of the solute undergoes dissociation or association?

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) What is Homogenous and Heterogeneous Catalysis? Briefly discuss transition state theory and write short note on acid –base catalysis.
(b) Define electrolysis. Explain faraday's law of electrolysis and also discuss Kohlrausch law.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) Briefly discuss transition state theory and write short note on acid –base catalysis.

(b) Give the postulates of molecular orbital theory and differentiate between bonding and anti bonding molecular orbitals.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) Define phase, component and degree of freedom with suitable example. Discuss in detail about KI-H_2O phase diagram.

(b) Write in detail about Debye-Huckel theory to explain conductance of strong electrolytes