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P-014-003203 Seat No. _____

M. P. M. (Sem. II) (CBCS) Examination

July - 2018

Pharmaceutical Chemistry - II

(Physical Chemistry)

Faculty Code : 014

Subject Code : 003203

Time : **3** Hours] [Total Marks : **80**

Instructions : (1) Attempt three questions from each section.
(2) Questions 1 and 5 are compulsory.
(3) Figure to the right indicates full marks for the respective question.

SECTION – I

1 Explain the following terms : (any **seven**) **14**
(1) Parachor
(2) Colligative Properties
(3) Phase Rule
(4) Heat of combustion
(5) Adsorption
(6) Phosphorescence
(7) Zero order kinetic
(8) Radioactivity
(9) Cell constant
(10) Curie

2 (1) What is Viscosity? How it is measured experimentally ? Enlist factors affecting and uses of viscosity. **7**
(2) State and explain Raoult's law and derive it's equation. **6**

3 (1) Define: Thermodynamics. Explain first law of thermodynamics. **7**
(2) Explain in detail Langmuir Adsorption isotherms. **6**

4 (1) State and explain Beer-Lambert's law of Photometry. **7**

(2) Discuss the methods of determination of order of a reaction. **6**

SECTION – II

5 Answer the following questions : (any **two**) **14**

(1) Define: surface tension. What are its units? Explain drop weight method for the determination of the surface tension.

(2) What is meant by freezing point depression? Derive equation to determine the molecular weight from depression of freezing point.

(3) Define C_P and C_V State their relation.

6 (1) Aspirin solution has initial concentration 500 mg/100 ml. After 40 days the concentration becomes 300 mg/100 ml. The reaction follows first order kinetic. Calculate half-life and reaction rate constant. **7**

(2) What is Photochemistry? Draw the Jablonski diagram and explain the Consequences of light absorption. **6**

7 (1) Write a note on "Geiger- Muller Counter". Compare properties of α, β and γ radiations. **7**

(2) Differentiate following : **6**

(1) Homogeneous and Heterogeneous catalysis

(2) First order reaction and second order reaction.

8 (1) Define Adsorption isotherm. Differentiate: **7**

(i) Adsorption and Absorption

(ii) Physical adsorption and Chemical adsorption.

(2) State and explain Henry's Law. Enlist its limitations. **6**
