Printed Pages: 02 | Sub Code: PHARM121

Paper Id: 150221 | Roll No. | | | | | | | | | | |

B. PHARM.

(SEM II) THEORY EXAMINATION 2017-18

PHYSICAL CHEMISTRY

Time: 3 Hours | *Total Marks: 100*

Note: Attempt all sections.

SECTION A

1. Attempt *all* questions in brief. **2 x10 = 20**

a. Differentiate between homogenous and heterogeneous catalysis?
b. State the Ostwald's dilution law.
c. What is an adsorption isotherm?
d. Write the Zeroth law of thermodynamics.
e. Define the heat of formation.
f. Write the formula for calculation of parachor.
g. Define the surface tension.
h. Define the molar and equivalent conductivity.
i. Write the Henderson-Hasselbalch equation for determination of pH of buffers.
j. Differentiate between reversible and irreversible process.

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a. What is spontaneous process? Write the various criteria for spontaneity. Discuss carnot cycle.
b. Differentiate between order and molecularity of a reaction. Write a note on acid – base and enzyme catalysis.
c. Write the Faraday's laws of electrolysis. What is electric conductance and how is it measured?
d. Differentiate between ideal and real solutions. Discuss various methods for expressing concentration of a solution.
e. What is thermodynamic system? Write the statement and equation for first law of thermodynamics.

SECTION C

3. Attempt any *one* of the following: **10 x 1 = 10**

(a) Enlist the general characteristics of gases. Discuss the kinetic molecular theory of gases.
(b) What are the different types of crystals? Write about the elements of symmetry in a crystal.

4. Attempt any *one* of the following: **10 x 1 = 10**

(a) Discuss Kirchoff's equation. Write the construction and functions of Bomb calorimeter.
(b) Discuss Joule- Thomson effect. Write a note on absolute temperature scale.

5. Attempt any *one* of the following: **10 x 1 = 10**

(a) Discuss the colligative properties in detail.
(b) Define the buffers. Write the theory of buffers.

6. Attempt any *one* of the following: **10 x 1 = 10**

(a) What is transport number? Discuss the Debye Huckel theory for strong electrolyte.
(b) What is Arrhenius theory of ionization? Give Kohlrausch's law and its applications.

7. Attempt any *one* of the following: **10 x 1 = 10**

(a) Define the phase, component and degrees of freedom. Draw the phase diagram for water system.
(b) What is the second order reaction? Derive rate equation for second order reactions.