NAW-003-047202   Seat No. _____

B. Voc. (Pharm Analysis & QA) (Sem. II) (CBCS) Examination

March / April - 2017

BVPAQA - 202 Pharmaceutical Physical Chemistry

Faculty Code : 003

Subject Code : 047202

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

Instructions : (1) All questions are compulsory & carry equal marks.

(2) Draw diagram and/or scheme wherever necessary.

1 (A) Answer the following multiple choice questions : **10**

(1) Define the term `System' with suitable example

(2) When two bodies are in thermal equilibrium with a third body, they are also in thermal equilibrium with each other. This statement is called _____ law of thermodynamics.

(3) Give the unit for rate of reaction.

(4) In a zero-order reaction for every 10^0 rise of temperature, the rate is doubled. If the temperature is increased from 10°C to 100°C, the rate of the reaction will become _____ times.

(5) Which type of the system has no change of matter or energy with its surrounding?

(6) Enlist any 2 factors affecting the adsorption of gases onto solids.

(7) The reaction $2HI \rightarrow H_2 + i_2$ is an example of _____ reaction (Unimolecular, Bimolecular)

(8) Give any two examples of intensive property.

(9) In an isothermal process, _____ remains constant during the process.

(10) The graph between x/m and pressure P of gas at constant temperature is called _____ isotherm. (Absorption, Adsorption)

(B) Answer the following multiple choice questions : **20**

    (1) Define the term: Bond Dissociation Energy

    (2) Define following terms: Absorption, Adsorption, Sorption, Desorption

    (3) Differentiate state function and path function with example.

    (4) State and briefly explain First Law of Thermodynamics.

    (5) Enlist Postulates of Langmuir's Adsorption Isotherm.

    (6) Calculate Molecular mass of $NaHCO_3$ & $CaCO_3$

    (7) In _____ process, temperature of the system remains constant; while in _____ process, heat of the system remains constant. (open, closed, isolated, isotope)

    (8) Sand in contact with water is an example of _____ system; and mixture of Argon and Helium gas is an example of _____ system. (homogeneous, heterogeneous)

    (9) Physisorption forms _____ layer while chemisorption forms _____ layer.

    (10) Define ideal solutions with example.

2   Answer any four out of the following six questions : **20**

    (1) Differentiate between (i) Absorption, Adsorption, and Surface Tension (ii) Physical Adsorption and Chemical Adsorption

    (2) Explain factor affecting adsorption. (adsorption of gas by solids)

    (3) Write a detailed note on applications of adsorption.

    (4) Define system and surrounding. Explain classification of thermodynamic systems with examples.

(5) Explain in brief with examples: (i) Intensive and Extensive Properties (ii) State and Path Function

(6) Enlist and explain different types of thermodynamic processes.

3 Answer any four out of the following six questions : **20**

(1) Write a brief note on (i) Order of a reaction (ii) Molecularity of a reaction.

(2) Explain Kinetics of zero order reaction with example.

(3) During the measurement of Surface Tension at 25 °C temperature and 1 atmospheric pressure, a droplet of unknown solution weighed 0.058 gm and water droplet of same size weighed 0.035 gm. Calculate the surface tension of unknown solution. (Surface tension of water = 71.97)

(4) Explain in detail: Viscosity.

(5) What is Surface Tension? Describe measurement of Surface Tension by Stalagmometer.

(6) Describe Henry's Law for effect of Pressure on solubility of gas in liquid.

———————