NBM-003-001209 Seat No. _____

First Year B. Sc. (Sem. II) (CBCS) Examination

March / April - 2017

IC.P-201 : Industrial Chemistry

Faculty Code : 003
Subject Code : 001209

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) All the questions are compulsory.
(2) Figures to the right indicate maximum marks.
(3) Draw labeled diagram wherever necessary.
(4) Assume suitable data.
(5) Q.1 carries 20 marks.
(6) Q.2 and 3 carry 25 marks each.

1 Answer the following questions : **20**

(1) Define: Solid cake and filtrate.

(2) What is unbound moisture content?

(3) _____ cooling result into formation of large number of nuclei, which result in large number of small crystals.

(4) Define: Priming

(5) Enlist merits of Plate type heat exchanger.

(6) A disperser draws _____ power than kneader type mixer.

(7) _____ is catalyst for manufacturing NH_3 by Haber process.

(8) Define: Catalytic promoter

(9) Define: Colloidal Solution

(10) _____ is range of HLB Value

(11) Define: Catalytic poisoning

(12) Keyboard is _____ device in computer

(13) _____ is biological catalyst.

(14) Enthalpy is denoted by _____ symbol.

(15) Boiler is also known as _____

(16) What is flow process ?

(17) Define the tem energy.

(18) What is latent heat of sublimation?

(19) Define: Stoichiometry coefficient.

(20) Adiabatic flame temperature is also known as _____

2 (a) Answer any **three** : **6**

(1) Enlist the characteristic of filter media.

(2) Enlist the merits and demerits of scraped surface crystallizer.

(3) Enlist different output devices of computer.

(4) Enlist types of adsorption.

(5) What is standard heat of combustion from heat of reaction?

(6) What is latent heat of vaporization?

(b) Answer any **three** : **9**

(1) Explain plate type fan and multi blade fan in detail.

(2) Discuss double pipe heat exchanger in detail.

(3) Differentiate between physical and chemical adsorption.

(4) Explain factors affecting adsorption

(5) Explain Hess's law of constant heat summation.

(6) Define: % Conversion and % yield.

(c) Answer any **two** : **10**

(1) Explain jet ejectors in detail.

(2) Discuss tumbling mixers in detail.

(3) Enlist applications of computer with short description of any five.

(4) Derive Freundlich adsorption isotherm.

(5) Explain classification of boilers in detail.

3 (a) Answer any **three** : **6**

(1) Define :

(a) Free moisture content

(b) Humidity

(2) What is importance of baffle in mixing?

(3) Define: True solution

(4) Define: suspension solution

(5) Define: Adiabatic reaction.

(6) State the law of conservation of energy.

(b) Answer any **three** : **9**

(1) Draw only diagram of sparkler horizontal plate filter.

(2) Explain working of tray dryer with diagram.

(3) Draw diagram of Breding's arc method for preparation of colloidal solution.

(4) Explain autocatalysis in detail with example.

(5) Derive an equation for relation between C_p and C_v for ideal gas law.

(6) Write a note on heat of solution and heat of mixing.

(c) Answer any **two** : **10**

(1) Explain Oslo crystallizer in detail.

(2) Explain drum dryer in detail.

(3) Explain optimum temperature, optimum pH and activation energy for enzyme catalysis.

(4) Explain adsorption theory of catalysis with example of nickel catalyst used for conversion of unsaturated hydrocarbon into saturated hydrocarbon.

(5) Explain Vertical tubular boiler with neat diagram.
