MBM-003-001209 Seat No. _____

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

March / April - 2018

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) Question - 1 carries 20 marks.
(6) Question - 2 and 3 carry 25 marks each.

1 Answer the following questions : **20**

(1) Filtrate is also known as _____

(2) Moisture content is denoted by _____ symbol.

(3) What is dew point?

(4) Write two demerit of Oslo crystallizer.

(5) Which pump runs at much higher speed?

(6) Give full form of NRV.

(7) Baffles are used in mixer to avoid _____ formation during mixing.

(8) Keyboard is _____ device in computer system.

(9) Give full form of ROM.

(10) If surface area increases adsorption _____

(11) "Permanent chemical bond is necessary for chemical adsorption" is this statement. true or false?

(12) Requirement of activation energy is _____ in catalytic reactor compared with conventional.

(13) A substance which though itself is not catalyst, promotes the activity of catalyst is called _____

(14) Enthalpy is denoted by _____ symbol.

(15) 'Steam generator' is also known as _____

(16) What is batch process?

(17) Define the term energy.

(18) What is latent heat of fusion?

(19) It is the number that precedes the formula of the components involved in chemical reaction is known as_____

(20) Adiabatic theoretical flame temperature is also known as_____

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

(1) Enlist the characteristic of filter media.

(2) Enlist the merits of scrapped surface crystallizer.

(3) Define adsorption with examples.

(4) Define emulsion with its types.

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

(6) What is latent heat of condensation?

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

(1) Enlist factors influencing the choice of pump.

(2) Discuss finned tube heat exchanger with diagram.

(3) Give comparison between physisorption and chemisorption.

(4) Explain Brownian motion and Tyndal effect in detail.

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

(6) Define: % conversion and stoichiometric coefficient.

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

(1) Explain shell and tube heat exchanger with neat diagram.

(2) Discuss sparkler horizontal plate filter with diagram.

(3) Derive equation for Freundlich adsorption isotherm.

(4) Explain mechanical dispersion method for preparation of colloidal solution.

(5) Explain classification of boilers in detail.

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

(1) Define :

(a) Unbound moisture

(b) Saturated Humidity

(2) Draw only diagram of rotary dryer.

(3) Give range of HLB value.

(4) What is negative catalyst?

(5) Define: Adiabatic process.

(6) State the law of conservation of energy.

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

(1) Draw only diagram of centrifugal blower.

(2) Explain tank crystallizer with neat figure.

(3) Explain activation energy required for catalytic and non-catalytic reactions with graph.

(4) Explain enzyme catalysis in detail.

(5) Derive an equation for relation between C_P and C_V.

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

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

(1) Explain factors affecting rate of drying in detail.

(2) Explain piston pump with neat diagram.

(3) Explain electrophoresis in detail with application and diagram.

(4) The feed containing 60 mole% A, 30 mole % B and 10 mole %.inert enters a reactor. The product stream leaving the reactor is found to contain 2 mole% A. Reaction taking place is $2A + B \rightarrow C$. Find the percentage of original A getting converted to C.

(5) Explain vertical tubular boiler with neat diagram.