

CVM UNIVERSITY**M.Sc. (Polymer Science & Technology) Semester-I Examination – 2021****Monday, 01st March 2021****10:00 a.m. to 12:00 p.m.****101340107: Industrial Chemistry - I****Note:** (1) Attempt all questions.

(2) Figures to the right indicate full marks.

Total marks: 60**Q. 1 (a) Answer the following multiple choice questions. (08)**

(1) For efficient use of solvent in liquid-liquid extraction selectivity should be

_____.

(i) >1 (ii) <1 (iii) 1 (iv) none of above

(2) If the composition of solute is same in extract and raffinate is same than it is called _____.

(i) distribution co-efficient (ii) plait point (iii) tie line (iv) none of above

(3) _____ is advantage of optimum reflux ratio.

(i) Less theoretical plates (ii) Column height less (iii) Fixed cost less (iv) All of above

(4) Raoult's law is used for predicting _____.

(i) vapour-liquid equilibrium (ii) volatile content measurement (iii) non-volatile content measurement (iv) none of above

(5) Sulfonates derived from _____.

(i) petroleum fraction (ii) lignin (iii) fatty oils (iv) all of above

(6) In Friedel-Crafts alkylation reaction _____.

(i) substitution of carbon to hydrogen (ii) substitution for hydrogen in carbon (iii) replacement of carbon to hydrogen (iv) replacement of hydrogen in carbon

(7) _____ halogenation reaction is mainly used and easy to handle.

(i) Chlorination (ii) Bromination (iii) Iodination (iv) Fluorination

(8) Rate of nitration process is _____.

(i) first (ii) second (iii) zero (iv) none of above

(b) Answer the following (Fill in the blanks and True or False) (08)

(1) Only physical changes occurs in _____.

(2) Distillation gives _____ product than liquid-liquid extraction.

(3) _____ is used as catalyst in manufacturing of benzene sulfonic acid.

- (4) Dimethylaniline is made from _____.
- (5) Counter current gives pure product than cross current True/False
- (6) Distillation is costlier than liquid-liquid extraction. True/False
- (7) Hydrolysis can easily done by water only. True/False
- (8) Organic and inorganic both types of catalyst are used in hydrogenation. True/False

Q.2 Attempt **any six** of the following. **(12)**

- (1) Draw and explain various types of solubility curves.
- (2) Define extract, raffinate, tie line and plait point.
- (3) Define weeping and flooding in distillation.
- (4) Discuss importance of optimum reflux ratio.
- (5) Discuss Iodination.
- (6) Draw only diagrams of reactors which used in chlorinatin.
- (7) Explain C- Alkylation and N- Alkylation.
- (8) Enlist applications of sulfonates and sulfates.

Q. 3 With a help of a neat diagram, explain mixer settler cascade & rotary disk contractor. **(08)**

OR

Q.3 Enlist the steps involved in calculation of theoretical stages in cross current & counter current extraction. **(08)**

Q. 4 Explain the various parts and functions of fractionator with a help of diagram **(08)**

OR

Q. 4 Explain in detail about azeotropic distillation and extractive distillation. **(08)**

Q. 5 Explain in detail about Schmid and Biazzinitrator. **(08)**

OR

Q. 5 With a help of diagram, explain the manufacturing process of benzene sulfonic acid. **(08)**

Q. 6 Explain in detail about various oxidation reactions. **(08)**

OR

Q. 6 Explain manufacturing process of ethanol. **(08)**