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SEAT No. _____

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SARDAR PATEL UNIVERSITY
M.Sc SEMESTER EXAM, SEM-IV
INDUSTRIAL CHEMISTRY

PS04CICH23 PROCESS DEVELOPMENT IN CHEMICAL INDUSTRIES

TIME: 2:00 to 5:00 p.m.

20-03-2019, Wednesday

MARKS: 70

Q.1 ANSWER THE FOLLOWING MCQs

(08)

1. Process research aims to accomplish optimized _____

- A. Chemistry B. Cost C. Process D. Product

2. _____ is the mixture of optically active compounds

- A. Diastomers B. Enantiomers C. Racemate D. Isomers

3. The ultimate ideal of simplification of reaction is to be able to do reactions with the _____ efficiency of enzymes in living organisms.

- A. In vitro B. In vivo C. Reproductive D. Catalytic

4. A _____ tragedy caused by teratogenic effects of the (S)- form of the drug marketed as racemate.

- A. Ketoprofen B. Citalopram C. Thalidomide D. Omeprazole

5. RCI predicts _____

- A. Heat of reaction B. Rate of gas evolution C. Both A & B D. None of these

6. A small change in _____ can change the course of a reaction

- A. Activation energy B. Free energy C. Internal energy D. Enthalpy

7. _____ solvents are H-Bonding

- A. Protic B. Dipolar aprotic C. Non-polar aprotic D. All of these

8. The purity encompasses _____

- A. Molecular homogeneity B. Chirality C. Physical stability D. All of these

Q.2 Answer the following short questions (Any 7)

(14)

1. When In situ generation of reaction components is obligatory?

2. What is enantiomeric excess?

3. What is E-factor?

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(P.T.O)

4. Differentiate between chiral and Achiral?
5. Define the term space-time yield
6. What is a CHETAH?
7. What is solvation?
8. What is classical work up?
9. Enlist various chemical methods of purification?

Q.3 (a) Discuss the terms process research and process development and discuss in brief the desirable goals of process development (06)

Q.3 (b) Explain in brief scope and limitations of process development (06)

OR

Q.3 (b) Discuss process development in relation to plant equipments (06)

Q.4 (a) What is chiral technology? Discuss its importance and enlist various techniques for obtaining single enantiomers (06)

Q. 4 (b) Present a note on factors responsible for the rapid growth of chiral technology (06)

OR

Q.4 (b) Highlight the important differences in telescoping and one pot synthesis (06)

Q.5 (a) Discuss safety issues in detail in choosing a reagent (06)

Q.5 (b) Write a note on solvation and its effect on solubility and reactivity (06)

OR

Q. 5(b) Explain Hughes-Ingold Rules and Solvent Effects on Reaction Rates (06)

Q. 6(a) Define work-up of a chemical process and discuss its aim and importance (06)

Q.6 (b) Discuss in brief classical work-up and discuss the problems associated with it. (06)

OR

Q.6 (b) Write a note on purity of chemical product. (06)

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