**Question bank (I scheme)**

**Name of Subject: Chemical Reaction Engineering**

**Subject code: 22512**

**Semester: Fifth Course: CH**

**Unit test -II**

**Chapter 3: Interpretation of batch reactor data (03 marks)(CO2)**

**2 marks question**

1. Differentiate between constant and variable volume reactions.
2. Define fractional conversion of A (xA) and fractional change in volume εA.
3. Draw the graph of Concentration Vs. time for first order reaction Give the value of slope.
4. Draw the graph of Concentration Vs. time for auto catalytic reaction. Give the value of slope.
5. Give the rate equation for series reaction.
6. Give the rate equation for parallel reaction.

**Chapter 4: Introduction to Reactor design(16 Marks)(CO3)**

**2 marks question**

1. Define Space time, space velocity and holding time.
2. Give the material balance equation of PFR and explain the terms.
3. Give the material balance equation of a reactor.
4. Calculate the space time for the reaction A →P, (-rA) = 0.0926 (min) -1 CA, reaction takes place in PFR with 60% conversion of A.
5. Give the application of MFR.
6. List the factors to be considered while designing a reactor?
7. State the advantages and disadvantages of batch reactor.

**4 marks question:**

1. Derive the performance equation for constant volume MFR.
2. Give the relation between CA and XA for constant volume system and variable volume system.
3. Derive the performance equation for PFR.
4. Give the graphical representation of performance equation for constant volume and variable volume batch reactor.
5. Give the classification of reactors?
6. **Chapter5: Design for single reactions(16 Marks)(CO4)**

**4 marks question:**

1. Differentiate MFR and PFR (any 4 points).
2. Show graphically how to find conversion, when MFR’s of different sizes are connected in series.
3. Explain how feed should be admitted when PFR’s are connected in parallel?
4. List the general rules to be followed for the best arrangement of a set of ideal reactors.
5. Explain how to determine the best arrangement for a given conversion when MFR’s of different sizes are arranged in series.
6. Explain the method of feeding when PFR’s are connected in series-parallel arrangement.