PAPER ID-310415

Roll No:

B TECH
(SEM-V) THEORY EXAMINATION 2020-21
PROCESS FLOW SHEET SIMULATION

Time: 3 Hours   *Total Marks: 100*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**   **2 x 10 = 20**
   a.   Ɪg.
   b.   Explain modules and components.
   c.   Define process simulation.
   d.   Define system.
   e.   Explain system properties.
   f.   Define sensitivity.
   g.   What do you mean by electrolyte modeling?
   h.   Write the component of system with example.
   i.   Define dynamic simulation.
   j.   Describe the use of simulation in chemical engineering.

SECTION B

2. **Attempt any *three* of the following:**   **10 x 3 = 30**
   a.   What do you mean by simulation packages? Also discuss the features of 'ASPEN PLUS' and 'HYSIS'
   b.   What is the most useful software in chemical engineering? Explain it why?
   c.   What are the numerical methods used for dynamic system? Explain.
   d.   Describe the term 'modules and components' with a suitable examples in a process simulation package.
   e.   What do you mean by molecular modeling & explain how it will compliment standard simulators.

SECTION C

3. **Attempt any *one* part of the following:**   **10 x 1 = 10**
   (a)   Explain synthesis of reaction systems and synthesis of azeotropic separation systems.
   (b)   What do you mean by flow sheet presentation? Explain tearing with the help of suitable examples.

4. **Attempt any *one* part of the** following**:**   **10 x 1 = 10**
   (a)   What do you mean by partitioning & tearing of a flowsheet. Explain with examples.
   (b)   What do you mean by manual flow sheet calculations with recycle streams. Explain

5. **Attempt any *one* part of the following:**   **10 x 1 = 10**
   (a)   Define sensitivity & explain VCM flow sheet sensitivity run.
   (b)   Write short notes on UniSim and TK-Solver

6. **Attempt any *one* part of the following:**   **10 x 1 = 10**
   (a)   Write short notes on Inorganic chemicals & electrolyte modeling.
   (b)   What is simulation? What are the need, advantage & disadvantage of simulation & modeling?

7. **Attempt any *one* part of the following:**   **10 x 1 = 10**
   (a)   Give the detail procedure for the design and simulation of sulphuric acid plant.
   (b)   Explain design fractionation using RADFRAC in the VCM flow sheet.