

B.TECH SEM – VIII (2007 COURSE) (CHEMICAL ENGG.) :
WINTER - 2017

SUBJECT : SOFTWARE DESIGN FOR CHEMICAL ENGINEERING

Day : Tuesday
Date : 21/11/2017

W-2017-2642

Time : 02.30 PM TO 05.30 PM
Max. Marks : 80

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in the **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.
- 4) Assume suitable data if necessary.

SECTION – I

- Q.1** a) Define process simulation and list out various process simulators available for steady and dynamic systems. [05]
b) Enlist the difficulties involved in modeling of a CSTR. [05]
c) Write a note on: Enterprise edition of visual basic. [04]
- Q.2** a) Consider the first order, isothermal reaction $A \xrightarrow{k} B$ is to be carried out in PFR. As a slice of material moves down the length of the reactor the concentration of reactant C_A decreases as A is consumed. Density (ρ), Velocity (U), concentration (C_A) can all vary with time (t) and axial position (z). Assume ideal plug flow conditions so that there are no radial gradients in velocity, density or concentration. Develop a mathematical model for the above system. State all assumptions. [09]
b) Write the component continuity equation for perfectly mixed batch reactor. [04]
- Q.3** a) The following equation is obtained by applying different modeling principles to a chemical process problem [09]
$$z = x^3 - 5x + 3$$

For further interpretation, the equation is to be solved for value of x at $z = 0$,
i) What are the numerical methods to find value of x ?
ii) Use any one of them to solve for 'x'.
iii) Write solution algorithm.
- b) Elaborate the principles of formulation of mathematical model. [04]
- Q.4** a) How the user defined error is created in code of visual basic? Explain with proper example. [07]
b) Write notes on: [06]
i) Computer object model
ii) Active X control

SECTION – II

- Q.5** a) Write a note on Distributed application with visual basic. [05]
b) Describe various functions in visual basic using suitable example. [05]
c) Explain the use of Active X control in visual basic script. [04]
- Q.6** a) How the design of components and services is done in visual basic? Explain in detail. [05]
b) Explain the steps of installation and configuration visual basic for the development of distributed application. [08]
- Q.7** a) Explain the handling of variables and different procedures in visual basic script. [06]
b) How 'access database' is connected to the front end in visual basic. [07]
- Q.8** a) Explain with suitable example validation in visual basic script. [08]
b) Write a note on : MDI application. [05]

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