

Registration No. :

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Total number of printed pages – 2

B. Tech
PECE 5404

Eighth Semester Regular Examination – 2015

PROCESS SIMULATION AND MODELING

BRANCH : BIOTECH

QUESTION CODE : J 158

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory and any **five** from the rest.
The figures in the right-hand margin indicate marks.*



1. Answer the following questions :

2 × 10

- (a) What is equilibrium ?
- (b) Write about types of fluid.
- (c) Explain transport equations.
- (d) What is geometric programming ?
- (e) Explain Regula falsi.
- (f) Explain Single component vaporizer.
- (g) What is Wegstein's method ?
- (h) Explain laws of process control.
- (i) What is phase equilibrium.
- (j) Explain Arrhenius temperature dependence.

2. (a) Explain energy equation for single CSTR.

5

(b) Give a brief description of variables.

5

P.T.O.

3. Explain continuity equation for CSTR in series. 10
4. (a) What are convergence methods? 5
(b) Explain model for Multi-component flash drum. 5
5. (a) Explain stability of the process with proper explanation of relationship between output- times. 5
(b) Differentiate between manipulated, controlled and uncontrolled variables. 5
6. (a) Draw feedback and feed forward controlled loop with proper description. 5
(b) Explain process controllers. 5
7. (a) Differentiate between single variable optimization and multivariable optimization. 5
(b) Differentiate between Lumped and distributed parameter models. 5
8. Write short notes on : 2.5 × 4
(a) Fibonacci
(b) Linear programming
(c) Energy equation
(d) Equations of state.
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