

FINAL EXAMINATION

INSTRUCTIONS: ANSWER ALL THE QUESTIONS

TIME: 3 HOURS

1. What are the four methods used to convert information diagram to numerical form?
2. How many columns be constructed in stream connection method?
3. Which matrixes are to be used for separating the serial and real sets?
4. What are the two type of systems for the formation of mathematical model? Also give examples
5. Classify the three type of mathematical model using deterministic approach?
6. Give one example of multiple gradient mathematical models?
7. What are the four alternate classification of transport phenomena models?
8. What are the types of flow pattern in process vessels?
9. How will you detect the dead space and bypassing in closed process vessels?
10. How will you measure the age distribution function in a closed vessel experimentally?
11. How do you calculate the goodness of fit of a polynomial expression?
12. What are the different types of arrangement in a multiple effect evaporator?
13. How can you define the boiling point rise in aqueous solution the evaporator?
14. How will you form mathematical model of separation processes like distillation column, strippers etc.?

15. How do you define the degree of freedom?
16. Name the two KEY volatile components?
17. Which type of condenser is recommended for reflux drum pressure from 1.48 MPa to 2.52 MPa?
18. Which equation is used to calculate the minimum number of stages in multi-component distillation column?
19. Which equation is used for calculating minimum reflux ratio?
20. Which equation is used to find the feed plate in multiple component distillation?
21. Define the stripping factor with a formula.
22. Which method is used to calculate the component flow rate from tridiagonal matrix in material balance and equilibrium equations in separation processes?
23. What is the necessary condition for a flash to occur?
24. How many different kinds of models can describe pseudo-homogeneous models for a fixed bed reactor?
25. Which equation is used to calculate minimum fluidization velocity?