Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

G:\logo and QP Template\logo 3 Feb 2018 final.tif

**End Semester Examination – Apr/May – 2018**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **12EI236** | **Duration :** | **3hrs** |
| **Sub. Name :** | **INSTRUMENTATION AND CONTROL IN PETROCHEMICAL INDUSTRIES** | **Max. marks :** | **100** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q. No.** | | **Questions** | | | **Marks** |
| **PART-A(10X1=10 MARKS)** | | | | | |
| 1. | | Draw the symbol of connector. | | | 1 |
| 2. | | Mention the analyzer used in distillation column. | | | 1 |
| 3. | | Point out the purpose of pressure control in chemical reactors. | | | 1 |
| 4. | | Define Low Water Interlock. | | | 1 |
| 5. | | State degrees of freedom. | | | 1 |
| 6. | | Name any one method of controlling the absolute pressure. | | | 1 |
| 7. | | List the types of evaporators. | | | 1 |
| 8. | | Give one application of Short-tube Vertical evaporator. | | | 1 |
| 9. | | Name any two process of waste water treatment. | | | 1 |
| 10. | | Define neutralization process. | | | 1 |
| **PART B(5 X 3= 15 MARKS)** | | | | | |
| 11. | | Draw the flow sheet symbol of a chemical reactor. | | | 3 |
| 12. | | Differentiate between Batch reactor and Continuous reactor. | | | 3 |
| 13. | | Define Fuel Control. | | | 3 |
| 14. | | List the advantages and disadvantages of forced circulation evaporators. | | | 3 |
| 15. | | Necessity of Neutralization control of waste water difficult. | | | 3 |
| **PART C(5 X 15= 75 MARKS)** | | | | | |
| 16. |  | Discuss reboiler control and reflux control in distillation column. | | 15 | |
| (OR) | | | | | |
| 17. |  | Elucidate on the column pressure control in vacuum distillation with a neat diagram. | | 15 | |
| 18. |  | Illustrate the temperature and pressure control in batch reactors. | | 15 | |
| (OR) | | | | | |
| 19. |  | Analyze the following:  a. Batch dryers.  b. Continuous dryers. | | 15 | |
| 20. |  | Explain the various control loops by which the condenser control can be achieved. | | 15 | |
| (OR) | | | | | |
| 21. |  | | Describe the use of three way and two way valves in a heat exchanger. | 15 | |
| 22. |  | | Outline the measurement and control of absolute pressure in an evaporator. | 15 | |
| (OR) | | | | | |
| 23. |  | | Describe the measurement and control of conductivity, differential pressure and flow in an evaporator with a neat sketch. | 15 | |
| 24. | a. | | Explain the operation of continuous oxidation of cyanide waste with chlorine. | 8 | |
| b. | | Give a note on calcium carbonate Precipitation control system. | 7 | |
| (OR) | | | | | |
| 25. |  | Elucidate on the effect of adding a reagent with high range ability in the Neutralization process. | | 15 | |