|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

 **Reg. No. :**

**Question Paper Code: 49064**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Elective

Instrumentation and Control Engineering

14UIC913 -INSTRUMENTATION FOR PETROCHEMICAL INDUSTRIES

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A solvent of low volatility is added to depress the volatility of one of the

 components, the separation is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (a) Azeotropic distillation (b) Adsorption

 (c) Compression-liquefaction (d) Extractive distillation

2. Crude oil is produced from the subsurface through a number of wells and stored

 afterstabilization in assemblages of overhead tanks called\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (a) Separators (b) Crude mix (c) Tank-farms (d) Distillation

 3. The gas produced from\_\_\_\_\_\_\_\_ contains propylene and butylene which can be

 polymerized to produced polymer gasoline of high octane number.

 (a) Thermal cracking (b) Catalytic cracking (c) Polymerization (d) Alkylation

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ process converts heavy oils, vacuum distillates to LPG, gasoline

 &olefin.

 (a) Fluid coking (b) Dyna cracking

 (c) Fluid catalytic cracking (d) Sulphur conversion

5. High pressure methanol synthesis operates in the pressure range of

 (a) 5 to 10 MPa (b) 5 to 20 MPa (c) 25 to 32 MPa (d) 30 to 35 MPa

6. Isoprene is used for producing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 (a) Synthetic natural rubber (b) Vinyl chloride Monomer

 (c) Ethylene glycols (d) T-ButylAlcohol

7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is used to describe maintenance which is used to delay break down.

 (a) Routine Maintenance (b) Preventive maintenance

 (c) Break down Maintenance (d) Predictive Maintenance

8. \_\_\_\_\_\_\_\_\_\_\_ to determine worst possible fault conditions for determining Intrinsic

 Safety.

 (a) Circuit analysis (b) Evaluation

 (c) Construction review (d) Maintenance operations

9. Polymerization takes place in an agitated stainless steel clad autoclave at pressure

 (a) < 6 K Pa (b) < 2 K Pa (c) > 6 K Pa (d) >2 K Pa

10. \_\_\_\_\_\_\_\_\_\_\_\_is a process by which two or more molecules combine to produce a single

 larger molecule.

 (a) Catalytic cracking (b) Polymerization

 (c) Cascade control (d) Thermal processes

PART - B (5 x 2 = 10 Marks)

11. List the factors influences the optimization of refinery control.

12. What are the operations performed in petroleum Industry?

13. Explain three technologies explored for methanol synthesis.

14. What is Total oxygen Demand (TOD)?

15. Define degree of freedom.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain the function of major rig components in Petroleum Exploration.

 (16)

Or

 (b) Explain Absorption-desorption method for Separation of Gases into individual

 constituents. (16)

17. (a) Describe the working of Fluid Catalytic cracking process with neat diagram. (16)

Or

 (b) Explain Sulphuric Acid (H2S04) Alkylation process based on time-tank, effluent

 Refrigeration. (16)

18. (a) (i) Explain the manufacturing process of Vinyl acetate Monomer. (8)

 (ii) Discuss Direct oxidation method of producing ethylene oxide. (8)

Or

 (b) Describe the method of producing of Isopropanol in a manufacturing process.

 (16)

19. (a)How will you select level measuring instruments for particular

 applications? Discuss in detail. (16)

Or

 (b) (i) Write short notes on grounding in electrical safety. (6)

 (ii) Explain various groups of Hazardous Locations. (10)

20. (a) Explain the PYC Production by Emulsion Polymerization process. (16)

Or

 (b) (i) Describe Fresh Feed Rate Control of Catalytic Crackers? (8)

 (ii) Explain Cascade control of reactor temperature? (8)