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**Question Paper Code: 49613**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Seventh Semester

Instrumentation and Control Engineering

14UIC913- INSTRUMENTATION FOR PETROCHEMICAL INDUSTRIES

(Regulation 2014)

Duration: 3 Hours

Maximum: 100 Marks

PART -- A (10 X 1 = 10 Marks)

(Answer all Questions)

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 after stabilization 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 produce 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) dyma 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)  
 (Answer all Questions)

11. List the factors influences the optimization of refinery control.
12. List the methods involve in Thermal recovery processes.
13. Explain three technologies explored for methanol synthesis.
14. Describe Total oxygen Demand (TOD)
15. Explain process degree of freedom.

PART -- C (5 X 16 = 80 Marks)  
 (Answer all Questions)

16. (a) Describe the description and functions of the 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 ( $H_2SO_4$ ) Alkylation process based on time-tank, effluent Refrigeration. 16
18. (a) (i) Explain the manufacturing process of Vinyl acetate Monomer 8  
(ii) illustrate Direct oxidation process method of ethylene oxide production. 8
- OR
- (b) Describe the method of production of Isopropanol manufacturing process. 16
19. (a) Describe the Selection of level measuring instruments for some important applications. 16
- OR
- (b) (i) Describe Grounding in Electrical safety. 6  
(ii) Explain the 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

