

Register Number

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2012

Eighth Semester

ELECTRONICS INSTRUMENTATION ENGINEERING

U07EIE06: Instrumentation in Petrochemical Industries

Time: Three Hours

Maximum Marks: 100

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

- _____ is removal of a component by selectively dissolving it in a liquid.
(A) Crystallization (B) Extraction (C) Filtration (D) Absorption
- Adsorbents used in solid desiccant are _____
(A) Silica gel (B) activated carbon (C) Molecular sieve (D) All the above
- Vis breaking is also known as _____
(A) Viscosity breaking (B) viscosity lowering (C) velocity breaking (D) Both a and b
- The high yield of feedstock in ethylene production is due to _____
(A) ethane with hydrogen (B) Naptha with hydrogen (C) Both a and b (D) None
- The reaction of methanol with carbon monoxide gives _____ as the product.
(A) Acetic acid (B) Ethylene glycol (C) Ethanol (D) tetramine
- The areas in which the phenol is used _____
(A) Dyes (B) Intermediates (C) Explosives (D) All the above.
- The unit for absolute viscosity _____
(A) poise (B) stoke-poise (C) dyne-sec/cm² (D) Both a and c
- The maintenance which is used to prevent delays and breakdowns are known as
(A) Preventive (B) calibration (C) Predictive (D) Breakdown
- _____ uses reflux and reboiler heatant flow to control composition
(A) Ratio control (B) Inferential control (C) Material balance (D) Energy balance
- _____ is a process to breakdown large hydrocarbon molecules into smaller molecules by heat.
(A) Polymerisation (B) Isomerisation (C) Pyrolysis (D) Catalytic cracking

PART B (10 x 2 =20 Marks)

11. What are the various recovery techniques in petroleum processing plant?
12. List the methods for refining the crude oil.
13. What is meant by catalytic polymerization.
14. What are the characteristics of catalysts?
15. Briefly explain the reaction to get acetic acid from methane.
16. How acrylonitrile is produced from acetylene?
17. List the various parameters to be measured in petroleum industry
18. Define wobbe index.
19. What are the controls used in production of polyethylene.
20. Explain the chemical reaction of polyvinyl chloride (PVC)

PART C (5 x 14 = 70 Marks)

21. a) With neat sketch explain the exploration of petroleum using rig also with mud Circulatory system.

(OR)

- b) (i) Explain formation of oil and gas in petroleum industry. (7)
- (ii) Explain in detail about the composition of petroleum product. (7)

22. a) Explain the processes in detail

- (i) Atmospheric distillation column (7)
- (ii) Hydro cracking (7)

(OR)

- b) (i) Explain fluidized bed Catalytic cracking with neat diagram. (7)
- (ii) Describe propylene production plant with neat diagram. (7)

23. a) (i) Name the various acetylene derivative and explain the wacker process for the production of vinyl acetate. (7)
- (ii) Discuss the production of ethanol from ethylene with chemical equations. (7)

(OR)

- b) (i) Explain the production of phenol with its chemical reaction. (7)

(ii) List the various methane derivatives and explain about them. (7)

24. a) Explain the selection process

(i) Flow measuring instrument (7)

(ii) Level measuring instrument (7)

(OR)

b) Explain in detail about intrinsic and extrinsic safety of instruments in petrochemical industry

25. a) Explain various controls of distillation column with neat diagram

(OR)

b) Explain in detail automatic control of polyethylene production with neat diagram.
