Reg. No. : | | | | | | | | | | |

Question Paper Code: 31961

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2016

Elective

Instrumentation and Control Engineering

01UIC913 - INSTRUMENTATON FOR PETROCHEMICAL INDUSTRIES

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What is meant by petroleum exploration?
2. Mention the factors that are required to make an oil deposit.
3. Define the term fishing and mention where it can be used.
4. How the control of reflux is being done?
5. List the chemical products of petroleum.
6. Define the term catalytic isomerization.
7. State the effects of temperature in the reactors.
8. What is thermo well?
9. State and explain the Arrhenius reaction rate equation.
10. Write the applications of process control.

PART - B (5 x 16 = 80 Marks)

11. (a) Draw a neat sketch and explain the refining techniques employed in crude oil. (16)

Or

(b) With a neat sketch, explain the operations involved in petroleum extraction. (16)

12. (a) Discuss in detail about the temperature conversion process with a neat sketch. (16)

Or

(b) Sketch the piping diagram of cracking process and describe them in detail. (16)

13. (a) Explain the process involved in methanol production from synthetic gases with its merits and demerits. (16)

Or

(b) Describe the ethylene and propylene derivatives extracted from the petroleum products. (16)

14. (a) Discuss in detail about the intrinsic safety of the instruments used in petroleum industries. (16)

Or

(b) Explain the following in detail:

(i) Lead compensation in temperature sensor. (8)

(ii) Density measurement in petroleum station. (8)

15. (a) (i) With a neat process diagram, discuss the pressure control of chemical reactors. (8)

(ii) Illustrate the cascade control method of temperature in chemical reactors. (8)

Or

(b) (i) Draw and explain the working and of liquid-liquid heat exchangers and its component selections. (8)

(ii) Select and apply a suitable controller for controlling the production of polyethylene. (8)

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