Q. Code: 733638

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

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Eighth Semester

CH16013 – PETROLEUM TECHNOLOGY

(Chemical Engineering)

(Regulation 2016)

TIME: 3 HOURS **MAX. MARKS: 100**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

1. Sketch the process flow diagram of the unit operation to remove the salt content from crude oil?

2. Mention the composition of Liquified Petroleum Gas used for domestic applications.

3. List the feedstock compositions for the Fluid Catalytic Cracking unit.

4. Specify the importance of H_2S in hydro processing units.

5. Distinguish ethanol blended gasoline and unblended Gasoline.

6. Write the significance of removing paraffins from automotive fuels used in IC engines.

7. Mention any two benefits of using solvent extraction to treat lube base stocks.

8. Appraise the importance of variation in viscosity, with reference to temperature.

9. An equipment cost is estimated as Rs. 65,00,000; but the actual cost of that equipment is found to be Rs. 68,25,000. Identify the method by which the cost estimation is done.

10. Sketch a model cost curve for a distillation equipment.

PART- B (5 x 16 = 80 Marks)

Marks

11. (a) Examine all the properties of crude oil by which the complexity of Refinery process shall **(16)**

be increased?

(OR)

(b) Demonstrate with the neat block diagram the essential unit process and its dependence to build a Greenfield Crude Oil Refinery? **(16)**

12. (a) **(i)** Categorize the important properties that decides the Catalytic cracking feedstock? **(10)**

(ii) Compare the reaction mechanism of Catalytic cracking over Thermal Cracking. **(6)**

(OR)

(b) Describe with neat sketch the salient features & the process of an efficient catalytic cracker of a crude oil refinery. **(16)**

13. (a) **(i)** Use Stoichiometric reactions to explain any one process to convert the Paraffins and Naphthenes into Aromatics. **(10)**

(ii) Elucidate the process to recover useful products from Vacuum Residue. **(6)**

(OR)

(b) Describe the process and operating conditions to operate Platformer equipment in crude oil refinery with neat sketch. **(16)**

14. (a) Demonstrate the importance of Hydrogen production and purification unit in Crude Oil Refinery and explain in detail with neat process flow diagram. **(16)**

(OR)

(b) Sketch and elucidate the procedure for operating the best suited equipment for solvent extraction of lube base stocks. **(16)**

15. (a) Illustrate with suitable example on Evaluation of Investments based on uncertainties in the cost of equipment, labor, operation and raw material cost. **(16)**

(OR)

(b) Demonstrate with example the Cost Estimation method used in the petroleum and petroleum residue industries; whose deviation with actual is 25%. **(16)**

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