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SARDAR PATEL UNIVERSITY

SEAT No. \_\_\_\_\_

M.Sc SEMESTER-II EXAMINATION

M.Sc INDUSTRIAL CHEMISTRY

PS02CICH10 PETROCHEMICAL TECHNOLOGY

TIME: 10:00A.M.-01:00P.M

17-04-2017, MONDAY

MARKS: 70

Q.1 ANSWER THE FOLLOWING MCQs

(08)

1. \_\_\_\_\_ is a naturally occurring mixture of light hydrocarbons accompanied by some non-hydrocarbon compounds

- A. Synthesis Gas    B. Natural Gas    C. Water Gas    D. All of these

2. \_\_\_\_\_ is condensable heavier hydrocarbons that are recovered from natural gas.

- A. CNG    B. LNG    C. PNG    D. NGL

3. In \_\_\_\_\_ process, part of the coke produced is used to provide the process heat.

- A. Delayed Coking    B. Fluid Coking    C. Viscosity Breaking    D. Steam Cracking

4. The two major chemicals viz. ammonia and methanol are produced from \_\_\_\_\_

- A. Synthesis gas    B. Natural gas    C. Water gas    D. None of these

5. \_\_\_\_\_ is produced as intermediate during urea production.

- A. Ammonium acetate    B. Ammonium Carbamate    C. Ammonium Chloride    D. Ammonium nitrate

6. Reaction between ethylene oxide and \_\_\_\_\_ produces ethoxylates

- A. Fatty amines    B. Fatty acids    C. Fatty alcohols    D. Fatty nitriles

7. \_\_\_\_\_ is produced from ethylene oxidation using wacker catalyst.

- A. Acetaldehyde    B. Acetic acid    C. Formaldehyde    D. Formic acid

8. Alkylation of benzene produces \_\_\_\_\_

- A. LAB    B. Ethyl Benzene    C. Cumene    D. All of these

Q.2 Answer the following short questions (Any 7)

(14)

1. Enlist various primary raw materials for petrochemicals.

2. Which are the different streams of NGL?

3. Explain briefly various types of crude oil.

4. Discuss the production of hydrazine from ammonia.
5. What is synthesis gas, Enlist the methods used to produce synthesis gas.
6. Enlist various chemical conversion processes for crude oil processing and explain vis-breaking.
7. What is wacker catalyst?
8. Enlist the important chemicals produced from toluene.
9. Why Ethylene is known as 'King of Petrochemicals'?

**Q.3 (a)** Define the terms: Petrochemicals, and discuss about the composition and properties of crude oils.

(06)

**Q.3 (b)** Discuss in brief various natural gas treatment processes

(06)

OR

**Q.3 (b)** Explain the terms: i. Associated and Non-Associated Natural gas

ii. CNG and LPG

(06)

**Q.4 (a)** Enlist various physical separation techniques for crude oil processing and write a note on Solvent extraction.

(06)

**Q.4 (b)** Write a detailed note on catalytic cracking

(06)

OR

**Q.4 (b)** Write a detailed note on steam reforming

(06)

**Q.5 (a)** Discuss in brief the chemicals based on direct reaction of Methane with reagents.

(06)

**Q.5 (b)** Write a note on synthesis gas and ammonia production starting from methane.

(06)

OR

**Q.5 (b)** Discuss the technology of methanol production from synthesis gas along with its major uses. (06)

**Q.6 (a)** Enlist various important chemicals produced from ethylene and discuss the production of vinyl chloride and vinyl acetate monomers from ethylene.

(06)

**Q.6 (b)** Give an explanatory note on the production technology of phenol and acetone from benzene via cumene.

(06)

OR

**Q.6 (b)** Write a note on chemicals produced from propylene.

(06)

Good Luck

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