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SARDAR PATEL UNIVERSITY

M.Sc SEMESTER-II EXAMINATION

M.Sc INDUSTRIAL CHEMISTRY

PS02CICH25 PETROCHEMICAL TECHNOLOGY

TIME: 10:00A.M.-01:00P.M **16-04-2018, MONDAY** **MARKS: 70**

Q.1 ANSWER THE FOLLOWING MCQs **(08)**

1. _____ is a mixture of carbon monoxide and hydrogen

A. Synthesis Gas B. Natural Gas C. Liquefied Petroleum Gas D. Natural gas liquids

2. _____ type of natural gas is found along with crude oil.

A. CNG B. LNG C. Associated D. Non-associated

3. _____ is a low-permeable rock made of inorganic material scattered with a high-molecular weight organic substance.

A. Oil shale B. Tar sand C. Gas hydrates D. Coal

4. In _____ type of conversion process only heat is used to effect the required change.

A. Thermal B. Catalytic C. Thermo-catalytic D. None of these

5. Methane reacts with sulphur at high temperatures to give ____.

A. Ammonia B. Carbon Disulphide C. Hydrogen Cyanide D. Nitric acid

6. Propylene is obtained by _____ of propane

A. Hydrogenation B. Alkylation C. Dehydrogenation D. Nitration

7. Direct oxidation of acetaldehyde yields_____

A. Acetonitrile B. Acetic acid C. Formaldehyde D. Formic acid

8. Oxidation of m-xylene gives isophthalic acid in the presence of _____

A. Ammonium Sulphite B. Cyclohyexane C. Cobalt acetate D. Ethylene dichloride

Q.2 Answer the following short questions **(Any 7)** **(14)**

1. Define the terms crude oil and natural gas.

2. Enlist the major constituents of crude oil?

3. Explain briefly what is NLG?

[P.T.O.]

4. Name the catalyst and promoter used in the carbonylation of methanol

5. List down the important uses of ammonia.

6. Why is the current chemical demand of propylene lesser than ethylene?

7. Why propylene is known as 'Crown prince' of petrochemicals?

8. Enlist the important chemicals produced from xylene.

9. Give molecular formula and molecular weight of propylene carbonate.

Q.3 (a) Discuss various important properties of crude oil. **(06)**

Q.3 (b) Discuss in brief about the following alternate sources for energy and chemicals:

i. Coal ii.Oil shale iii. Tar sand **(06)**

OR

Q.3 (b) Write a note on Natural Gas liquids. **(06)**

Q.4 (a) Discuss Atmospheric distillation and Vacuum distillation used for physical separation of crude oil **(06)**

Q.4 (b) Discuss Aim, Feed, Method and Products of coking process. **(06)**

OR

Q.4 (b) Discuss Aim, Feed, Catalysts, Methods and Products of catalytic reforming **(06)**

Q.5 (a) Explain the following chemicals with respect to the production reaction & reaction conditions, properties and uses.

a. Urea b. Nitric acid. **(06)**

Q.5 (b) Write a note on chemicals obtained from propane. **(06)**

OR

Q.5 (b) Give the chart of all the chemicals based on ethylene along with the unit processes involved. **(06)**

Q.6 (a) Write a note on major chemicals produced from benzene. **(06)**

Q.6 (b) Give the production reaction, reaction conditions, properties and uses of the following chemicals:

a. Acetic acid from n-butene b. Maleic Anhydride from n-butene **(06)**

OR

Q.6 (b) Write a note on chemicals produced from toluene. **(06)**