

SARDAR PATEL UNIVERSITY
SEMESTER EXAM, M.Sc. INDUSTRIAL CHEMISTRY
SEMESTER -2, PS02CICH10-PETROCHEMICAL TECHNOLOGY

21-10-2016, Friday, TIME: 10:00 a.m to 1:00 p.m

Total Marks: 70

Note: Attempt all questions. Draw neat and labeled diagram where ever necessary. Figures on the right show marks.

Q.1 Answer the following MCQs. (08)

1. _____ is the gaseous component of petroleum.
A. Natural gas B. Synthesis gas C. Water gas D. All of these
2. Hydrogen sulphide is removed from natural gas by _____.
A. Distillation B. Drying C. Filtration D. Absorption
3. _____ is use to produce various fractions from crude oil.
A. Extraction B. Adsorption C. Fractional distillation D. Absorption
4. _____ is the major feed sock for petrochemicals.
A. Naptha B. Distillate residue C. Lubricating oil D. None of these
5. Main aim of reforming is to _____.
A. Remove impurities B. Reduce pour point C. Increase octane no. D. Produce BTX
6. _____ is major reactions in catalytic cracking process.
A. Chlorination B. rupture of C-C bonds C. Sulphonation D. Nitration
7. Chlorination of methane produces _____.
A. Methyl chloride B. Ethyl chloride C. Butyl chloride D. All of these
8. The major raw material for the production of ammonia is _____.
A. Synthesis gas and water B. Synthesis gas and air C. Both A & B D. None of these

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

1. What is crude petroleum? Enlist the major components present in it.
2. What are gas hydrates?
3. What is propane deasphalting?

(P.T.O)

4. What is catalytic reforming?
5. Enlist the important chemicals synthesized from methane?
6. What is petroleum refining? Enlist its goals.
7. What is CNG?
8. What is Flexi coking?
9. Enlist the important chemicals derived from benzene.

Q.3 (a) Discuss various treatment methods used for removing water from natural gas. (06)

Q.3 (b) Discuss the following tests for characterizing crude oil:

- i. API gravity
 - ii. Characterization factor
 - iii. Bottom sedimentation water(BMW)
- (06)

OR

Q.3 (b) Explain in brief various refining operations for crude oil. (06)

Q.4 (a) Write a note on following thermal conversion processes:

- i. Coking
 - ii. Visbreaking
- (06)

Q.4 (b) Write a note on Alkylation process (06)

OR

Q.4 (b) Explain the following catalytic cracking processes:

- i. Deep catalytic cracking
 - ii. Hydrocracking
- (06)

Q.5 (a) Enlist various important chemicals produced from synthesis gas and discuss in detail the technology of ammonia production. (06)

Q.5 (b) Discuss chemicals produced from n-Butane (06)

OR

Q.5 (b) Discuss production of methanol from synthesis gas and enlist various important chemicals that are produced from methanol. (06)

Q.6 (a) Write a note on production of acetaldehyde from ethylene and important chemicals produced from acetaldehyde. (06)

Q.6 (b) Present an overview of chemicals produced from propylene. (06)

OR

Q.6 (b) Give a brief account of chemicals produced from Toluene. (06)

Good Luck