

'I' Scheme

Sample Question Paper

Program Name : Diploma in Chemical Engineering
Program Code : CH
Semester : Sixth
Course Title : Petroleum and Petrochemical Technology
Marks :70

22611

Time:3Hrs.

Instructions:

- (1)All questions are compulsory.
- (2)Illustrate your answers with neat sketches wherever necessary.
- (3)Figures to the right indicate full marks.
- (4)Assume suitable data if necessary.
- (5)Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following.

(10 Marks)

- a. List out any four petroleum refinery products.
- b. Name any four test properties of Kerosene
- c. Define reforming.
- d. Name any four petrochemicals derived from C₂ hydrocarbon .
- e. Write the names of Indian companies operating in the field of petroleum and petrochemical sectors. (two each).
- f. List out any four petrochemicals derived from aromatics.
- g. Give two uses each of following petrochemicals.
(i) Formaldehyde (ii) Ethylene oxide

Q.2) Attempt any THREE of the following.

(12 Marks)

- a. Explain the composition of crude oil
- b. Give applications of vacuum distillation in crude oil refining.
- c. Differentiate between petroleum refinery and petrochemical industry.(any four)
- d. Explain fluidized bed catalytic cracking with diagram

Q.3) Attempt any THREE of the following. (12 Marks)

- a. Explain desalting of crude oil with a flow diagram.
- b. Describe manufacturing of formaldehyde with flow sheet.
- c. Draw the flow sheet for two stage hydrocracking process
- d. List any four fractions obtained from crude oil with their boiling point range and one use of each.

Q.4) Attempt any THREE of the following. (12 Marks)

- a. Give the classification of crude oil.
- b. Write chemical reaction involved in the following manufacturing
i) Butadiene ii) Benzoic acid
- c. Explain catalytic reforming, with flow sheet.
- d. Explain sulphuric acid alkylation process with flow sheet.
- e. Describe manufacturing of aniline from phenol.

Q.5) Attempt any TWO of the following. (12 Marks)

- a. Define: (i) Octane Number (ii) Cetane Number
(iii) Flash point (iv) Aniline point
- b. Describe with a flow diagram manufacturing of Methyl tertiarybutyl ether (MTBE).
- c. Explain manufacturing of styrene from ethylene with flow diagram and write reactions involved in it.

Q.6) Attempt any TWO of the following. (12 Marks)

- a. Explain atmospheric distillation of crude oil, with flow diagram.
- b. Describe with a flow diagram manufacturing of propylene oxide.
- c. Describe a process of Visbreaking with diagram.

'T' Scheme

Sample Test Paper - I

Program Name : Diploma in Chemical Engineering
Program Code : CH
Semester : Sixth
Course Title : Petroleum and Petrochemical Technology
Marks : 20

22611

Time: 1 Hour.

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

(08 Marks)

- a) Name any two Indian refineries with their location and capacity.
- b) List out different refinery products (Any Four).
- c) Define octane number and cetane number.
- d) Differentiate between thermal and catalytic cracking process (Any Two).
- e) Name the fraction which belongs to following list of test properties.
(i) Aniline point (ii) Smoke point
- f) State the various properties of crude oil (Any four).

Q.2 Attempt any THREE.

(12 Marks)

- a) Give composition of petroleum.
 - b) Explain with flow diagram desalting of crude oil.
 - c) Draw ASTM distillation curve and explain significance of boiling point range.
 - d) Describe with sketch vacuum distillation of crude oil.
 - e) Describe with sketch working of fixed bed catalytic cracking process.
 - f) Describe with sketch delayed coking process.
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'I' Scheme

Sample Test Paper - II

Program Name : Diploma in Chemical Engineering
Program Code : CH
Semester : Sixth
Course Title : Petroleum and Petrochemical Technology
Marks : 20

22611

Time: 1 Hour.

Instructions:

- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR.

(08 Marks)

- a) Write reaction involved in the production of methanol.
- b) List the name of four petrochemicals derived from C₂ hydrocarbons.
- c) Compare petroleum refinery and petrochemical industry (Any two).
- d) Define Alkylate and state types of alkylation process.
- e) List the name of four petrochemicals derived from C₄ hydrocarbons.
- f) Suggest any two up gradation process used for the petroleum product.

Q.2 Attempt any THREE.

(12 Marks)

- a) Draw the flow sheet for manufacture of styrene from Ethylene.
 - b) Describe with flow sheet, manufacturing of aniline from phenol.
 - c) Draw the flow sheet for manufacture of propylene oxide from propylene.
 - d) Explain manufacturing of Ethylene oxide from ethylene with neat flow sheet.
 - e) Draw the flow sheet for manufacturing of acetaldehyde from propylene.
 - f) Explain any one type of isomerization process with neat flow sheet.
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