

PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
M.Sc., Summer 2022-23 Examination

Semester: 4**Subject Code: 11214252****Subject Name: Petroleum Refining Processes****Date: 20-03-2023****Time: 2:00pm to 4:30pm****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)
(a) Write lead doctoring of gasoline with flowsheet.
(b) Write a short note on H₂SO₄ Alkylation with flowsheet.

Q.1. B) Answer the following questions (Any two)
(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) (04)
1. Write difference between crude oil and petroleum.
2. Write name of main product of visbreaking operation.
(b) Short note: Delayed coking (04)
(c) Short note: TBP crude assay analysis (04)

Q.2. A) Answer the following questions.
(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)
1. Explain viscosity index
2. Explain cetane number
(b) Write a short note on thermal cracking (04)

Q.2. B) Answer the following questions (Any two)
(a) Short note/ Multiple choice questions. (Each of 01 marks) (03)
1. If characterization factor value is 12.5, then base of crude is ____
a. Paraffin b. aromatics c. olefins
2. The bottoms of any column are called
a. Residrum b. residuum c. distillate
3. Catalytic desulfurization method is used in removal of ____
a. Nitrogen b. sulfur c. carbon
(b) Write a short note on FCC Unit. (03)
(c) Write a short note on catalytic desulfurization. (03)

Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)
(a) Which is more important, Electric cars versus Oil and gas sector ?
(b) Write significance of Pour point, Cloud point, Fire point.

Q.3. B) Answer the following questions (Any two)
(a) Short note/ Brief note (2x2)/ Schematically label the figures (2x2) (Each of 02 marks) (04)
1. What is Natural gas?
2. In USA, ____ % of crude is converted to gasoline.
(b) Write a short note on Hydrofining operation. (04)
(c) Write a short note on Hydro cracking operation. (04)

Q.4. A) Answer the following questions.
(a) Short note/ Brief note (2x2)/ Fill in the blanks. (Each of 02 marks) (04)
1. Ratio of doctor solution to gasoline in lead doctoring process is ____
2. octane number of gasoline is ____after cracking.
(b) Write a short note on 'Petroleum composition in crude oil'. (04)

Q.4. B) Answer the following questions (Any two)

- (a) Short note/ Multiple choice questions. (Each of 01 marks) **(03)**
1. Which are the main parameters in cracking operation?
a. Pressure b. Temperature c. time d. All of these
 2. Cracking is
a. Exothermic b. Endothermic c. depends on parameters d. None of these
 3. Regeneration is
a. Exothermic b. Endothermic c. depends on parameters d. None of these
- (b) Write a short note on Merox treatment. **(03)**
- (c) Write a short note on affecting parameters on cracking operation. **(03)**