

# Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



B. Tech(Sixth Semester – Regular/Supplementary) Examinations, April 2025

**21BCHPE36021/22BCHPE36021 – Fuel and Energy Technology**

(Chemical Engineering)

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

## PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

	CO #	Blooms Level
a. Discuss the various Crude oil distillation systems.	CO1	K1
b. What are the different coal gasification techniques used for producing syngas?	CO3	K1
c. What are the various types of coal losses encountered during mining, transportation, and combustion processes?	CO1	K2
d. What is coal washing, and why is it an important process in coal preparation?	CO4	K2
e. Mention the catalyst used in synthetic petrol manufacturing.	CO4	K1

## PART – B

(15 x 4=60 Marks)

Answer **all** the questions

	Marks	CO #	Blooms Level
2. a. Enumerate about the origin of coal formations.	8	CO1	K1
b. What are the different Losses take place during Coal Storage? How it can be prevented?	7	CO2	K2
(OR)			
c. Explain Coalification Process. Discuss it with respect to rank.	8	CO1	K1
d. Discuss about the coke oven batteries, Discuss the construction of Beehive oven.	7	CO2	K2
3.a. Differentiate between High and Low temperature carbonizations.	8	CO2	K2
b. Discuss the by-product coke oven process with neat diagram during the manufacturing coke.	7	CO2	K1
(OR)			
c. Classify the crude based on nature of hydrocarbon.	8	CO2	K2
d. Discuss the formation of petroleum on the basis of inorganic and modern theory.	7	CO3	K3
4.a. Analyse the different Pre-treatment processes of oil at Oil field before Refining.	8	CO3	K2
b. With a neat flow sheet show the flow sheet of different product from crude mentioning its end uses of each.	7	CO4	K3
(OR)			
c. What are the factors affecting cracking?	8	CO3	K1
d. What is cracking? Why is its requirement? Write the reactions involved in catalytic cracking. Explain FCC with neat sketch.	7	CO4	K2
5.a. Differentiate Water Gas, Semi water Gas and Carburetted Water Gas.	8	CO4	K1
b. What is Synthetic Fuel? Discuss the Fischer Troph Process for converting the solid into liquid fuel.	7	CO3	K2
(OR)			
c. What is nuclear fuel? Why it is popular for power generation.	8	CO4	K1
d. Discuss about the types and elements of a nuclear reactor in detail mentioning	7	CO4	K3

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