

4017

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(b) Mention the various uses of coal as a fuel and as a non-fuel in various industries.

(c) What are surfactants? Discuss any two, specifying their role in the manufacture of detergents.

(5,5,5)

(1000)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4017

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Unique Paper Code : 2172551201

Name of the Paper : DSC : Fossil Fuels and
Cleansing Agents

Name of the Course : **Bachelor of Science in
Industrial Chemistry**

Semester : II

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are **six** questions in all.
3. Attempt any **four** questions.
4. Each question carries **15** marks.

P.T.O.

1. (a) Differentiate between the following :

(i) Renewable and non-renewable sources of energy.

(ii) Solid, liquid, and gaseous fuels

(iii) Fat and oil

(b) What is the saponification number of an oil/fat? How is it determined?

(c) Define Octane number. Why is un-leaded petrol used nowadays? (9,3,3)

2. (a) Discuss the carbonization of coal in detail.

(b) Describe the industrial process of hydrogenation of oil. Why is hydrogenation of oils carried out?

(c) Write any five requisites of a good metallurgical coke. (5,5,5)

3. Write short notes on the following :

(a) Biogas and its limitations

(b) Producer gas

(c) Water gas (5,5,5)

4. (a) How is the refining of petroleum done? Discuss in detail.

(b) Write a note on the reforming of petroleum.

(c) Discuss thermal and catalytic cracking. Write any four applications of it. (5,5,5)

5. (a) Explain why soap is wasted when washing clothes with hard water. What are the advantages of detergents over soaps?

(b) What are clean fuels? Give examples.

(c) Write notes on LNG and CNG and compare them. (5,5,5)

6. (a) What is the calorific value of a fuel? Discuss the high calorific value and low calorific value.