

11N503

Roll No. _____

Total No. of Pages: **3****11N503****B. Tech. I - Sem. (New Scheme) (Main) Exam., May - 2023****All Branch****1FY1 - 03 Engineering Chemistry****Common to all Branches****Time: 3 Hours****Maximum Marks: 70****Instructions to Candidates:**

Part - A: Short answer questions (up to 25 words) 10×2 marks = 20 marks.
All ten questions are compulsory.

Part - B: Analytical/Problem solving questions 5×4 marks = 20 marks.
Candidates have to answer five questions out of seven.

Part - C: Descriptive/Analytical/Problem Solving/Design questions 3×10 marks = 30 marks. Candidates have to answer three questions out of five.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)

1. NIL2. NIL**PART - A**

~~Q.1~~ What is total hardness of water? [2]

~~Q.2~~ What are boiler scales? Enlist their disadvantages. [2]

~~Q.3~~ Mention application of soda lime glass and potash glass. [2]

- Q.4 Why is Portland cement so called? [2]
- Q.5 Advantages of biofuels. [2]
- Q.6 Enlist types of renewable energy. [2]
- Q.7 Mention classification of coal with % of carbon in them. [2]
- Q.8 Proximate analysis of coal and its applications. [2]
- Q.9 What are green solvents? [2]
- Q.10 What is synthetic petrol? [2]

PART – B

- Q.1 Discuss fluid lubrication. [4]
- Q.2 Discuss caustic embrittlement. [4]
- Q.3 Draw flow diagram of steps involved in cement manufacture by Rotary Kiln technology. [4]
- Q.4 Give a short account of fluid film lubrication and boundary lubrication. [4]
- Q.5 What are secondary fuels? What are their important characteristics? [4]
- Q.6 Write note on biomass as source of energy. [4]
- Q.7 Why is coke and not coal used as a fuel in metallurgical industry? [4]

PART – C

- Q.1 'Corrosion can be considered as the reverse of process of metal extraction'.

Justify the statement.

[10]

- Q.2 What is glassy state of matter? Why is annealing important in glass manufacture? Write about importance of pure silica glass. [10]
- Q.3 Define lubricants. Discuss classification of lubricants with suitable examples. [10]
- Q.4 What is green chemistry? Enlist the principles of green chemistry. What are the advantages of green chemistry? [10]
- Q.5 A coal sample has following analysis: C = 66.2%, H = 4.2%, O = 6.1%, N = 1.4%, S = 2.9%, moisture = 9.7% and 9.5% ash. If 1.0 kg of coal is burnt with 25% excess air, determine the quantity of combustion products. [10]
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