2E3202

Roll No. _____

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B. Tech. II - Sem. (Main / Back) Exam., - 2023

2FY2 – 03 Engineering Chemistry

Time: 3 Hours

Maximum Marks: 70

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

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. NIL _____

2. NIL _____

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Why should an ideal fuel have moderate ignition temperature?

Q.2 What type of dissolved impurities are present in water?

Q.3 What do you mean by the term 'Disinfection'?

Q.4 What is octane number?

Q.5 What are the consequences of corrosion?

Q.6 Define viscosity index.

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Q.7 What are the constituents of Portland cement?

Q.8 Define glassy state of matter.

Q.9 Why gypsum in added to cement?

Q.10 Why the complex of Ca^{+2}/Mg^{+2} with EDTA is more stable than the complex of Ca^{+2}/Mg^{+2} with EBT?

PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Explain thin layer mechanism of lubrication.

Q.2 Explain in brief, chemistry of settling & hardening of cement.

Q.3 What are (a) Electrophilic reagents (b) Nucleophilic reagents, give two example of each.

Q.4 What is fuel? Give the different types of fuel. What are the requirement of fuel to be used in an industry?

Q.5 Discuss various chemical method for disinfection of water.

Q.6 A sample of coal was found to have the following composition by weight -

C = 70%, O = 14%, H = 6%, N = 5% & rest is ash

Calculate gross & net CV of coal by Dulongs formula.

Q.7 Why annealing is required in the manufacturing of glass?

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 What is corrosion? Discuss the mechanism of electrochemical corrosion.

Q.2 Describe hot lime-soda process for water softening, give the chemical reactions involved in it.

Q.3 What are the different types of organic reactions? Explain them with an example.

Q.4 What is glass? Discuss the manufacturing of ordinary glass.

Q.5 Draw neat & labelled diagram and explain coke manufactured by Otto-Hoffmann's method.