

**2E3202**

Roll No. \_\_\_\_\_

Total No. of Pages: **3**

**2E3202**

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

**2FY2 – 03 Engineering Chemistry**

**Maximum Marks: 70**

**Time: 3 Hours**

*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.
- Q.7 What are the constituents of Portland cement?

**Q.8 Define glassy state of matter.**

**Q.9 Why gypsum is added to cement?**

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

**PART - B**

**[5x4=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 examples 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 Dulong's formula.**

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

PART - C(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.
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