**R22**

# ANURAG Engineering College
## (An Autonomous Institution)
### I B.Tech II Semester Supplementary Examinations, Jan/Feb-2024
### ENGINEERING CHEMISTRY
### (COMMON TO CE, EEE, ECE & IT)

**Time: 3 Hours**          **Max. Marks: 60**

### Section – A (Short Answer type questions)     (10 Marks)
**Answer All Questions**

| | | Course Outcome | B.T Level | Marks |
|---|---|---|---|---|
| 1. | What is phosphate conditioning? | CO1 | L1 | 1M |
| 2. | Write the units of hardness of water. | CO1 | L1 | 1M |
| 3. | Differentiate battery and fuel cells with examples. | CO2 | L2 | 1M |
| 4. | What is solar cell? | CO2 | L1 | 1M |
| 5. | What is addition polymerisation, give examples? | CO3 | L1 | 1M |
| 6. | Write the advantages of vulcanisation of rubbers. | CO3 | L1 | 1M |
| 7. | Calculate the bond order for B2, C2. | CO4 | L2 | 1M |
| 8. | Define LCAO method. | CO4 | L1 | 1M |
| 9. | List the advantages of lubricants. | CO5 | L1 | 1M |
| 10. | Define flash point, fire point. | CO5 | L1 | 1M |

### Section B (Essay Questions)
**Answer all questions, each question carries equal marks.**     **(5 X 10M = 50M)**

| | | | Course Outcome | B.T Level | Marks |
|---|---|---|---|---|---|
| 11. A) | i) Define hardness of water. | | CO1 | L3 | 3M |
| | ii) Explain the steps involved in the potable water treatment. | | | | 7M |
| | **OR** | | | | |
| B) | i) What is desalination of water? | | CO1 | L3 | 3M |
| | ii) Explain Ion exchange process with regeneration process. | | | | 7M |
| 12. A) | i) Differentiate between battery and fuel cells. | | CO2 | L3 | 4M |
| | ii) Write the working and applications of Lithium ion battery. | | | | 6M |
| | **OR** | | | | |
| B) | i) Define corrosion. | | CO2 | L3 | 2M |
| | ii) Explain the factors affecting rate of corrosion. | | | | 8M |
| 13. A) | Write the preparation, properties and applications of BUNA-S,Thiokol Rubber. | | CO3 | L3 | 10M |
| | **OR** | | | | |
| B) | i) Define polymerisation with examples. | | CO3 | L3 | 2M |
| | ii) Differentiate thermosetting plastics and thermoplastics. | | | | 8M |
| 14. A) | Explain molecular energy diagrams for N2, F2. | | CO4 | L3 | 10M |
| | **OR** | | | | |
| B) | i) Explain Crystal field splitting of tetrahedral complexes. | | CO4 | L3 | 7M |
| | ii) Factors affecting crystal field splitting energy. | | | | 3M |
| 15. A) | i) Explain setting and hardening of Portland cement. | | CO5 | L3 | 5M |
| | ii) Explain the mechanism of lubrication. | | | | 5M |
| | **OR** | | | | |
| B) | Explain about smart materials and their engineering applications. | | CO5 | L3 | 10M |