

VR20



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VELAGAPUDI RAMAKRISHNA
SIDDHARTHA ENGINEERING COLLEGE
(AUTONOMOUS)

I/IV B.Tech. DEGREE EXAMINATION, AUGUST, 2022

20BS1102/2102 ENGINEERING CHEMISTRY

(Regular Branches of AI&DS, CSE, ECE & IT and all Branches of
Supplementary)

Time: 3 hours

Max. Marks: 70

Part-A is compulsory

Answer One Question from each Unit of Part - B

Answer to any single question or its part shall be written at one place only

PART-A

10 x 1 = 10M

1.
 - a. How water for drinking purpose is treated by chlorination?
 - b. What is break point chlorination? State its significance.
 - c. Write a brief note on calgon conditioning.
 - d. How many phases can coexist in equilibrium at a time?
 - e. How does a primary battery differ from a secondary battery?
 - f. Explain why glass electrode cannot be used for solution of pH value above 9.0.
 - g. Corrosion of metals in aerated acids is severe than in deaerated acids. Why?
 - h. What are the sacrificial anodic metals?
 - i. Write the applications of conducting polymers.
 - j. Calculate the weight and volume of air required for combustion of 3Kg of carbon?



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PART-B

4 x 15 = 60M

UNIT-I

2. a. What is brackish water? Explain the desalination of brackish water by electrodialysis method. 8M
- b. Explain caustic embrittlement in the boiler. Explain the causes and control measures. 7M

(or)

3. a. What are boiler troubles? How are they caused? Give suggestions to minimize the boiler troubles. 6M
- b. Elaborate the terms:
i) Scales formation ii) Coagulation iii) Sedimentation. 9M

UNIT-II

4. a. What is condensed phase rule? Explain the TC diagram of Pb-Ag system? 7M
- b. Define Fuel Cells? Explain the construction and working of $H_2 - O_2$ fuel cell. Write its advantages. 8M

(or)

5. a. Construct glass electrode and discuss the determination of pH using glass electrode. 7M
- b. Construct the P-T diagram of water system and explain in detail about the phase diagram of Water system. 8M

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UNIT-III

6. a. What is Electro chemical corrosion? Explain the mechanism of Evolution of H_2 and Absorption of O_2 in it. 8M
- b. What are the main objectives of electroless plating? Give an account of the method used in electroless plating. 7M

(or)

7. a. What is pitting and Galvanic corrosion? Explain how they are created. 8M
- b. What is meant by cathodic protection method? Explain the impressed current method of cathodic protection. 7M

UNIT-IV

8. a. What are conducting polymers? Discuss the classification of conducting polymers. 9M
- b. Explain the proximate analysis of coal and give its significance. 6M

(or)

9. a. Describe the flue gas analysis by Orsat's apparatus and give its significance. 8M
- b. Explain the mechanism of conduction of p-doped polyacetylene. 7M

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