VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) II-Semester Advanced Supplementary Examinations, July-2019
Chemistry-II

Time: 3 hours

Max. Marks: 60

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. Define a cell and battery.

2. Write any two important advantages of fuel cells.

3. Differentiate between thermoplastics and thermosets.

4. Classify the conducting polymers.

5. Enlist the characteristics of potable water.

6. 100ml of a given water sample requires 12 ml of N/50 HCl for colour change with phenolphthalein indicator. Calculate the type and extent of alkalinity.

7. Define liquid crystals and mention their applications.

8. What is the role of Matrix and reinforcement in a composite?

9. Write the principle of atomic absorption spectroscopy and mention the various sources of light used in it.

10. Explain the principle of Thermo Gravimetric Analysis (TGA).

Part-B (5 × 8 = 40 Marks)

11. a) Differentiate between primary and secondary batteries and mention one example for each. [4]

    b) With a neatly labeled diagram, explain the working of Ni-Cd cell. What are its limitations, advantages and applications? [4]

12. a) Bring out the differences between addition and condensation polymerisation. [4]

    b) Give the preparation, properties and applications of phenoplast. [4]

13. a) Define de-salination and discuss one method to convert saline water into potable water. [4]

    b) How will you determine the hardness of water by EDTA method? Explain. [4]

14. a) Write a note on nematic and smectic liquid crystals. [5]

    b) Classify the composite materials and explain hand layup method for their preparation. [3]

15. a) What is the principle and applications of Atomic Absorption Spectroscopy? [4]

    b) Write a note flame photometer. [4]

16. a) What are lithium-ion batteries? Mention their advantages and applications. [5]

   b) Outline the synthesis of Buna-S rubber and write its applications. [3]

17.   Answer any **two** of the following:

   a) Breakpoint chlorination. [4]

   b) What are the different approaches for the synthesis of nano-materials? Explain chemical vapour deposition(CVD) method. [4]

   c) Applying Beer-Lamberts law, explain the estimation of $CuSO_4$ in the given solution by visible spectroscopy. [4]

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