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Code No. : 12014 B O2

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (CBCS) II-Semester Old Examinations, May/June-2018

Applied Chemistry
(CSE, ECE & IT)

Time: 3 hours

Max. Marks: 70

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

Part-A (10 × 2 = 20 Marks)

1. Distinguish between equivalent conductance and specific conductance.
2. Write the IUPAC norms to represent a galvanic cell.
3. What is an Irreversible cell? Give example.
4. Give the cell reaction of Zn-C battery.
5. What are extrinsic polymers?
6. Composite materials are preferred over conventional materials. Justify.
7. What is a liquid crystal? How is it different from normal crystal?
8. Explain the working principle of membrane.
9. List the characteristics of explosives.
10. Discuss the classification of propellants and give examples.

Part-B (5 × 10 = 50 Marks)

11. a) Explain the construction Quinhydrone electrode and discuss its use in the determination of pH of a given solution. [6]
b) Calculate the EMF at 298K for the following cell:
 $\text{Zn} | \text{Zn}^{+2} (0.001\text{M}) || \text{Ag}^+ (0.005\text{M}) | \text{Ag}$, given that $E^0_{\text{Zn}^{+2}|\text{Zn}} = -0.76 \text{ V}$ and $E^0_{\text{Ag}^+|\text{Ag}} = 0.8\text{V}$. [4]
12. a) Illustrate the construction and working of phosphoric acid fuel cell and mention its limitations. [6]
b) Discuss the electrode reactions of Ni-Cd battery during charging and discharging. [4]
13. a) Discuss the mechanism of conduction in doped and un doped poly acetylene. [5]
b) Write notes on fibre reinforced composites. [5]
14. a) Distinguish between thermotropic and lyotropic liquid crystals. [5]
b) Discuss the synthesis of poly phenylene oxide and poly ether sulphone. [5]
15. a) Differentiate detonators and high explosives. Discuss the preparation of TNT. [6]
b) List the requirements for the selection of a good propellant. [4]
16. a) What is electro chemical series and discuss any two applications. [5]
b) Explain the construction and applications of Li-ion batteries. [5]
17. Answer any *two* of the following:
a) Applications of composites. [5]
b) Carbon Nanotubes preparation and applications. [5]
c) Preparation of lead azide and nitroglycerine. [5]

