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Question Paper Code: 50005

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

First Semester

Computer Science and Engineering

15UCY105 - APPLIED CHEMISTRY

(Common to Electrical and Electronics Engineering, Electronics and Communication Engineering, Electronics and Instrumentation Engineering and Information Technology)

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Vander walls forces are_____
 - Strong forces
 - Weak forces
 - Neutral forces
 - None of the above
- The bond order in N₂_____
 - 3.0
 - 4.0
 - 0.5
 - 1.0
- Dry corrosion is a process of contact of two metals
 - Indirectly
 - Directly
 - Oppositely
 - Reversibly
- In electrochemical corrosion
 - anode undergoes oxidation
 - cathode undergoes oxidation
 - both undergo oxidation
 - none of these
- The electrolytic solution in nickel cadmium battery is
 - H₂SO₄
 - KOH
 - MnO₂
 - CH₃COOH

6. The byproduct obtained in H_2 and O_2 fuel cell is
(a) H_2 (b) O_2 (c) H_2O liquid (d) H_2O vapour
7. What is the range of visible region?
(a) 200-400 nm (b) 400-1000 nm (c) 400-850 nm (d) 400-750 nm
8. An example of green chemistry is
(a) recycled carpet (b) a product made on earth day
(c) a sublimation reaction (d) bio-plastics
9. What is the range of UV-visible radiation?
(a) 200-700 $m\mu$ (b) 200-800 nm (c) 200-800 μm (d) 150-750nm
10. In which spectroscopic technique the change in vibrational and rotational movements can be detected?
(a) UV-Vis (b) NMR (c) IR (d) TGA

PART - B (5 x 2 = 10 Marks)

11. State Octet rule.
12. Define single electrode potential.
13. Write the chemical reactions in $Zn-MnO_2$ battery.
14. Differentiate TGA and DTA.
15. What is meant by the term smart material?

PART - C (5 x 16 = 80 Marks)

16. (a) Explain the various types of hybridization with examples. (16)
- Or
- (b) Discuss briefly the molecular orbital theory. Discuss the formation of O_2 molecule on the basis of this theory. (16)
17. (a) Describe in detail the measurement of single electrode potential by Poggendorf's method. (16)

Or

(b) What are the main objectives of electroplating? Give an account of the method used in electroplating of nickel. (16)

18. (a) Discuss the types of ion selective electrode in detail. (16)

Or

(b) Write an account of NICAD Batteries. (16)

19. (a) Summarize the working principles of thermo gravimetric analysis. (16)

Or

(b) Describe the principle and instrumentation of UV visible spectroscopy. (16)

20. (a) Explain the various properties of conducting polymers. (16)

Or

(b) Write short note on use of conducting polymers in organic light emitting diodes. (16)
