Register Number: ……..

B.E DEGREE EXAMINATIONS:MAY/JUNE 2014

(Regulation 2009)

Second Semester

CHY104:CHEMISTRY FOR CIRCUIT ENGINEERING

(Common to ECE, EEE & EIE)

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. In double beam space instrument the two beam are formed in space by using
   a) Photo detector b) Beam splitter
   c) Multiplier tube d) Read out
2. In molecular spectroscopy transition occurs between the
   a) Rotational level b) Vibrational levels
   c) Electronic levels d) All the above
3. PMMA is
   a) Polymethylmethacrylate b) Polymethylacrylate
   c) Polymethylmethacetate d) pentamethylmethacrylate
4. ---------- is an example for soldering material
   a) Zinc b) Silver
   c) Indium d) Thallium
5. The ratio between the magnetic flux density in the material and the applied magnetic field is
   a) Magnetic susceptibility b) Magnetic field strength
   c) Magnetic permeability d) Magnetic flux
6. The Magnetic material with no permanent dipole moment is
   a) Diamagnetic material b) Paramagnetic material
   c) Anti ferromagnetic material d) Magnetic flux
7. The process which uses ions of heavy inert gas to bombard surface material is
   a) Electroplating b) Vacuum evaporation
   c) Cathode sputtering d) Electroless plating
8. Oxidation process is carried out to introduce -------- film over Si-wafer
   a) SiO_2 b) B_2O_3
   c) P_2O_3 d) $POCl_3$

9. Hardness of water is expressed in terms of ---------- of equivalent hardness
   a) Calcium Carbonate b) Calcium bicarbonate
   c) Magnesium carbonate d) Magnesium Bicarbonate
10. Carry-over process is ----------
    a) Caustic embrittlement b) Scale and Sludge Formation
    c) Priming and Foaming d) Boiler Corrosion

PART B (10 x 2 = 20 Marks)

11. State Beer-Lambert law.
12. What are the vibrational transitions in Carbondioxide?
13. What is meant by encapsulation?
14. Define ferromagnetism.
15. Define diffusion current.
16. What is meant by binding energy?
17. What is electroless plating?
18. What is an IC?
19. State Pilling-Bedworth rule.
20. List any four disadvantages of hard water in industry.

PART C (5 x 14 = 70 Marks)

21. a) Explain the principle involved in X-Ray diffraction and describe the powder method in X-ray diffraction analysis.

    (OR)

    b) Write a C program to determine the wave number of stokes and anti-stokes lines.

22. a) Detail on liquid crystal polymers.

    (OR)

    b) (i) What is a nanomaterial? How are nanomaterial synthesized? (7)
    (ii) Describe lithographic materials. (7)

23. a) Define half life period and write a computer program to determine half life period and average life of a radioactive nucleus.

    (OR)

    b) (i) Classify insulating materials and detail on each one of them with examples. (7)
    (ii) What is a semi conductor and detail on its properties. (7)

24. a) Write a note on photolithography, ion implantation and etching process.

(OR)

b) Describe CMOS and Ga-As technologies.

25. a) (i) Explain the internal conditioning methods in treatment of hard water? (10)

(ii) Explain the factors that affect corrosion. (4)

(OR)

b) (i) With a neat sketch, detail on the desalination process. (7)

(ii) Describe the sacrificial anodic method. (7)

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