KUMARAGURU college of technology
character is life

Register Number: ……..

B.E / B.TECH DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2009)

Second Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

CHY104: Chemistry For Circuit Engineering

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The wave number of IR radiation of 500µm is
   a) 300 cm^{-1} b) 200 cm^{-1}
   c) 1500 cm^{-1} d) 3500 cm^{-1}
2. Complexing agents are added to colourless solution of given species during
   a) Absorption b) Emission
   c) Transition d) Excitation
3. Multi-Colour electrochromism is exhibited by
   a) Liquid crystal polymer b) Conducting polymer
   c) Polystyrene d) PVC
4. The structural units of polymers are called
   a) Elastomers b) Monomers
   c) Fabrics d) Fibers
5. Insulating material used in spark plugs is
   a) Rubber b) Porcelain
   c) Mica d) Polystyrene
6. Which of the following is the heaviest?
   a) Molecule b) Atom
   c) Electron d) Proton
7. The foundation on which an IC is built is called
   a) Insulator b) Base
   c) Plate d) Wafer
8. Monolithic IC_S are fabricated within a

a) Soft stone
b) Single stone
c) Silicon layer
d) PN junction

9. Colloidal conditioning of a boiler feed water is done by
a) Calgon
b) EDTA
c) Na_2CO_3
d) Lignan

10. Which one of the following causes corrosion of iron?
a) Oxygen
b) Hydrogen
c) Strong base
d) Moisture and oxygen

PART B (10 x 2 = 20 Marks)

11. List two factors which affect the absorbance of the photons by a molecule.
12. What is Raman scattering?
13. List two examples for pyro electric polymer.
14. Identify two applications of encapsulate in electrical and electronic industries.
15. Distinguish between polar and non polar dielectrics.
16. Define mass defect. How it is related to mass number?
17. List two limitations of ICs.
18. Mention two advantages of Ga-As over silicon in fabrication of ICs.
19. List two disadvantages of hard water in industries.
20. State Pilling – Bedworth rule.

PART C (5 x 14 = 70 Marks)

21. a) i) List the salient features and applications of silicon photodiodes. (7)
ii) Discuss the principle of X-ray diffraction. (7)

(OR)

b) i) How to determine the masses of isotopes from vibrational spectroscopic data using C programming? (7)
ii) Discuss the principle of FT spectroscopy. (7)

22. a) i) Give the preparation, properties and application of polyaniline. (7)
ii) Make a note on lithographic materials. (7)

(OR)

b) i) List the applications of nanomaterials in computer science and information (7)

technology industries.

ii) Make a note on polymer composites. (7)

23. a) i) List the properties and applications of insulating materials in micro electronics. (7)

ii) How to determine the half-life of a radioactive nucleus using computer programming? (7)

(OR)

b) i) List the properties and applications of magnetic materials in micro electronics. (7)

ii) How to determine the binding energy of a particle using computer programming? (7)

24. a) Explain in detail about photolithography and etching process.

(OR)

b) Illustrate with diagram the process sequence of fabrication of CMOS.

25. a) i) Explain ion exchange method of water softening with neat diagram. (7)

ii) Illustrate the sacrificial anode method of corrosion control with two examples. (7)

(OR)

b) i) Explain reverse osmosis method of purification of sea water with neat diagram. (7)

ii) Illustrate the mechanism of electrochemical corrosion by oxygen absorption with neat diagram. (7)

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