

C 40922

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Name.....

Reg. No.....

**COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, APRIL 2013**

EN 09 104/PTEN 09 104—ENGINEERING CHEMISTRY

(2009 Scheme—Regular/Supplementary/Improvement)

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Comment on the effect of temperature on conductivity.
2. Write the chemical structures of EDTA and EBT.
3. Write the monomers of nylon-6, 6.
4. What is an electrochemical cell ?
5. Define BOD and COD.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Write a short note on carbon nanotubes and nanowires.
7. How is Hardness of water sample experimentally determined by EDTA method ?
8. Write a note on any *two* polymerization techniques.
9. Briefly discuss the determination and importance of aniline point and corrosion stability of lubricants.
10. The copper rods are placed in copper sulphate solution of concentration 0.1 M and 0.01 M respectively to form a cell. Give the cell representation and calculate its EMF at 298 K.
11. Explain how metallic coatings are obtained by galvanizing.

(4 × 5 = 20 marks)

Part C

Answer section (a) or section (b) of each question.

12. (a) What are intrinsic and extrinsic semiconductors ? Explain the semiconductivity in stoichiometric and non-stoichiometric compounds.

Or

- (b) Discuss in detail the various steps involved in the purification of water for domestic use.

Turn over

13. (a) (i) What are the classifications of polymers? Give one example for addition and condensation polymers.

(5 marks)

(ii) Bring out the importance of viscosity and corrosion stability of lubricants. (5 marks)

Or

(b) Explain the preparation, properties and structure PE, PS bakelite and silicones.

14. (a) Discuss the construction, functioning and applications of fuel cells and solar cells.

Or

(b) (i) How is pH of an acid solution determined by glass electrodes? (5 marks)

(ii) Derive Nernst equation. (5 marks)

15. (a) Explain the resting of iron with the help of electrochemical theory of corrosion.

Or

(b) What are the sources of air pollution? Explain the harmful effects of ozone depletion and acid rain.

[4 × 10 = 40 marks]