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## (Pages 2)

## Name O

## COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2008

Chemistry

## EN 2K 104 (A)-ENGINEERING CHEMISTRY (A)

(Common to AI, CS, EE, EC, IT and IC)

**Time : Three Hours** 

Maximum : 100 Marks

- I. (a) What are ionic, molecular and covalent crystals?
  - (b) State free electron theory.
  - (c) Write short note on buffer solutions.
  - (d) What is common ion effect ? Give any two uses of it.
  - (e) Explain what happens if a pipeline is partially buried under the earth surface.
  - (f) How does combustion of engine cause are pollution?
  - (g) What is latex ? How is it obtained and processed ?
  - (h) Write short note on extreme pressure lubrication.

 $(8 \times 5 = 40 \text{ marks})$ 

(7 marks)

- II. (a) (i) What are the different types of bonds present in crystalline solids? Give an example for each type.
  - (ii) Derive Bragg's equation for diffraction of X-rays by crystals. (8 marks)

Or

- (b) (i) Why is the diamond so hard and why is its melting point extremely high? (7 marks)
  - (ii) Explain the term Miller indices. What is the law of rational indices ? Give its application.
- III. (a) (i) Derive Nernest equation and mention its application.
  - (ii) Describe the standard hydrogen electrode and its use in the determination of single electrode potential.

(8 marks)

Turn over

(8 marks) (7 marks)

Or

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司机农	(b) (i	i). )	What is meant by electrochemical series ? Discuss its application.	(7 marks)
	ing to S		How is overvoltage experimentally determined ? Discuss the influence of o metal depositions.	vervoltage in
			- / GRE ACCORDING PARTING ALL DESIGN	(8 marks)
IV.	(a) (i	<b>i)</b> ]	Explain the principle of electrochemical corrosion with suitable example.	(7 marks)
	<b>(i</b>	<b>i)</b>	Describe the impressed current and sacrificial anode methods of corrosion co	ontrols.
			(Comment to AL CS, BE, BW R and IC) -	(8 marks)
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	(b) (i)		Discuss the mechanism of galvanic cell corrosion with an example. Give the possible corrosion reactions in acid and neutral conditions.	
	N.	Č,	increase and stated	(8 marks,
	(i	<b>i)</b>	What is atmospheric corrosion ? Discuss the factors influencing atmospheric	corrosion.
14 24		9. 1	(checking to the provide the second	(7 marks)
<b>V</b> .	(a) (	(i) .	How would you classify polymers based on sources and applications ?	(7 marks)
	( (i	<b>ii)</b>	Describe the mechanism of addition polymerisation.	(8 marks)
			, is a description of the organization of the	
	(b) (	(i)	Discuss the mechanism of co-ordination polymerisation.	(8 marks)
	(i	ii) `	Write a note on "solid lubricants".	(7 marks)
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