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SCHOOL OF ENGINEERING CUSAT COCHIN UNIVERSITY OF SCIENCE & TECHNOLOGY LIBRARY KOCHI-682 022

B.Tech. Degree I & II Semester (Combined) Examination, June 2008

IT/CS/EC/CE/ME/SE/EB/EI/ EE/FT 103 ENGINEERING CHEMISTRY

(2006 Scheme)

Time: 3 Hours Maximum Marks: 100

PART A

(Answer all questions)

(8 x 5 = 40)

I	a)	Explain Born-Haber cycle with example.	
	b)	Explain in brief what is BET isotherm.	
	c)	What is photovoltaic effect? Give details of solar cells.	
	d)	Explain the significance of Arrhenim equation.	
	e)	What is Troutons rule? Explain.	
	f)	What is meant by chemical potential? Give its importance in chemical reactions.	
	g)	Write notes on optical fibres.	
	h)	Write notes on nanoceramics.	

PART B

(15 x 4 = 60)

II	a)	Explain in details Point Defects.	(10)
	b)	Explain Band theory of solids.	(5)
		OR	
III	a)	Explain the different types of liquid crystals.	(10)
	b)	Write notes on Super Conductors.	(5)
IV	a)	Explain the Poggen Droff compensation method for determination of emf.	(6)
	b)	What is Buffer solution? Explain its action with examples.	(4)
	c)	Explain Cathodic protection method in metallic corrosion.	(5)
		OR	
V	a)	Give the important factors controlling corrosion.	(8)
	b)	What is a sec-cell? Explain the working of lead-acid storage cell.	(7)
VI	a)	Derive the Kirchoff's equation.	(6)
	b)	Explain Nernst heat theorem.	(4)
	c)	Thermodynamics of Biochemical reactions.	(5)
		OR	
VII	a)	Derive the Gibbs-Helmholtz equation.	(5)
	b)	State the three different rules of thermodynamics.	(6)
	c)	Show and explain the relation between temperature, pressure and free energy.	(4)
VIII	a)	What is polymer processing? Explain in details the different methods.	(10)
	b)	Explain the mechanism of lubrication.	(5)
		OR	
IX	a)	Write down in detail the preparation, properties and application of any three industrial polymers.	(10)
	b)	What are the different types of lubricants? Give the details.	(5)

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