B.Tech. Degree I & II Semester (Combined) Examination, June 2006

IT/CSEC/CE/ME/SE/EB/EI/EE 104 ENGINEERING CHEMISTRY

(Common)

Time: 3 Hours | Maximum Marks: 100

I	a)	Write a note on BOD.	(5)
	b)	What are disinfectants? Give any three methods for the disinfection of water.	(6)
	c)	What is water softening? Explain the ion exchange method for water softening.	(9)
		OR	
II	a)	How are BOD and COD experimentally determined?	(5)
	b)	20ml of standard hard water (containing 15g calcium carbonate per litre) required 25ml of EDTA solution for endpoint. 100ml of water sample required 18ml EDTA solution while same water after boiling required 12ml EDTA solution. Calculate carbonate and non carbonate hardness of water.	(6)
	c)	Explain scale sludge formation in boilers.	(9)
III	a)	What are the constituents of varnish?	(5)
	b)	Distinguish between galvanic corrosion and pitting corrosion.	(6)
	c)	Write a ***note on:*** (i) tinning (ii) phosphate coating (iii) effect of pH on the rate of corrosion.	(9)
		OR	
IV	a)	Give any two methods of cleaning articles before electro deposition.	(5)
	b)	Write a note on cathodic protection.	(6)
	c)	Explain any three theories of corrosion.	(9)
V	a)	Give the working of hydrogen-oxygen fuel cell.	(5)
	b)	Write a note on electrode potential.	(6)
	c)	Derive Nernst equation for Daniel cell.	(9)
		OR	
VI	a)	What is a standard cell? Give an example.	(5)
	b)	What is a standard hydrogen electrode? Give its use.	(6)
	c)	What is a concentration cell? Give its applications.	(9)
VII	a)	Explain the manufacture of water gas.	(6)
	b)	Write a note on proximate analysis of coal.	(6)
	c)	What is calorific value of a fuel? How it is derived for a solid fuel.	(8)
		OR	
VIII	a)	Write a note on reforming.	(6)
	b)	Write a note on solid lubricant.	(6)
	c)	Explain the manufacture of coke by Otto Hoffman's by-product oven method.	(8)
IX	a)	Write a note on vulcanization of rubber.	(5)
	b)	Distinguish between emulsion polymerization and suspension polymerization.	(6)
	c)	Write ***notes on***: i) amino resin ii) polyster iii) polyurethane	(9)
		OR	
X	a)	Write note on silicone resins.	(5)
	b)	Distinguish between compression moulding and extrusion moulding.	(6)
	c)	Write ***notes on*** : (i) nylon (ii) bakelite (iii) nitrile rubber	(9)

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