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SARDAR PATEL UNIVERSITY

M.Sc. (Polymer Science & Technology) Semester-III Examination-2016

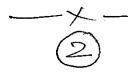
Saturday, 22ndOctober-2016

02:00 P.M. to 05:00 P.M.

PS03CPST08: RUBBER TECHNOLOGY

Note:	(1) A	Total Marks: Attempt all questions.	70
110101		Figures to the right indicate marks.	
Q. 1		Answer the following multiple choice questions.	08
	.(1)	The most important source of natural rubber is fromtree.	
		(i) Heyea brasiliences (ii) Parthenium argentatum (iii) Castilla elastica (iv) Funtumia elastica.	
***	(2)	The pressure exerted by water inside the cell against the cell wall is known as pressure.	
		(i) cell (ii) turgor (iii) both of above (iv) none of above.	
	(3)	catalyst used for manufacturing of SBR.	
	(4)	(i) sulphur (ii) s-butyl lithium (iii) Ziegler-Natta (iv) both 2 & 3. strength of elastomers is its resistance to deterioration and fracture	
	(1)	before vulcanization.	
	/ # \	(i) Green (ii) Tensile (iii) Flexural (iv) All.	
	(5)	Slate powder is used as a in rubber industry. (i) plasticizer (ii) coupling agent (iii) filler (iv) cross linker.	
	(6)	used to promote Cord-rubber adhesion.	
		(i) Resorcinol-formaldehyde (ii) Butadiene-styrene-vinyl pyridine emulsions (iii) Both of above (iv) None of above.	
	(7)	2,6-di-t-butyl-p-cresol is used as aagent.	
		(i) antioxidant (ii) antiozonant (iii) antireversion (iv) antidegradant.	
,	(8)	The sulphur having melting point ⁰ C is used for vulcanization. (i) 100 (ii) 115 (iii) 110 (iv) 120.	
Q. 2		Attempt any seven of the following.	14
	(1)	How is levulinic aldehyde formed? Explain with reaction.	
	(2)	Enlist drawback of raw rubber.	
	(3)	Write down important characteristics of rubber.	
	(4)	Explain structure, properties and applications of Chlorosulphonated polyethylene.	

	(5)	Write a note on ethylene-acrylic elastomer.	
	(6)	Explain classification and properties of carbon black.	
	(7)	Write a note on rubber hose.	
	(8)	Explain the role of sulphur donor with suitable examples.	
	(9)	Draw neat labelled flow diagram of polyisoprene manufacturing.	
Q. 3	(a)	1. Preservation and coagulation of Latex	-06
	(b)	 Cultivation of natural rubber Explain following. Cyclised rubber Chemically modified forms of natural rubber 	06
		OR	
	(b)	Explain technically specified rubber with neat labelled flow diagram.	06
Q. 4	(a)	Discuss in detail about Styrene-butadiene rubber (SBR).	06
	(b)	Discuss about following synthetic rubber 1. Ethylene-propylene-diene terpolymer	06
		2. Polychloroprene rubber OR	
	(b)	Write a note on various temperature resistant elastomers.	06
Q. 5	(a)	Write a note on following	06
		 Non sulphur vulcanisation Petroleum products used in elastomers. 	
	(b)	Discuss in detail about peroxides used for cross linking of elastomers. Enlist various advantages and draw backs compared to sulphur vulcanization.	06
		OR	
	(b)	Write a note on rubber compounding.	06
Q. 6	(a)	Discuss in detail manufacturing of furnace and thermal black.	06
	(b)	Discuss in detail about theory of sulphur vulcanization and accelerator action.	06
		OR	
	(p)	Write a note on following 1. Conveyor and power transmission belt 2. V-belt	06



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