Seat N	Vo.: _	Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
a		BE - SEMESTER-V(New) • EXAMINATION – WINTER 2016	
-		Code:2152601 Date:24/11/2016	
•		Name: Vulcanisation	
		:30 AM to 01:00 PM Total Marks: 70	
Instru			
		Attempt all questions.	
		Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
	Э.	rigures to the right indicate run marks.	
Q.1		Answer the following	14
•	1.	Define the term vulcanization.	
	2.	Give any two advantages of vulcanization process.	
	3.	List out any two allotropic forms of sulphur.	
	4.	Which types of crosslink most commonly take place in sulphur vulcanization?	
	5.	What do you mean by scorch time?	
	6.	Write down the formula representing the working principle of Oscillating Disc	
	_	Rheometer.	
	7.	List out any two area, where we find the application of Oscillating Disc Rheometer.	
	8.	Write down the major difference between Oscillating Disc Rehometer and Moving Die	
	Δ	Rheometer.	
	9.	Which accelerators are used in vulcanization of chloroprene rubber?	
	10. 11.	• 1	
	11. 12.		
	13.	•	
	14.		
		Tor which record products prossurized various technique is used.	
Q.2	(a)	Define the given terms: (i) State of Cure (ii) Rate of Cure (iii) Crosslink Density	03
Q.2	(b)		04
Q.2	(c)	Discuss in detail about the structure of rubber vulcanizate.	07
		OR	
Q.2	(c)	Discuss in detail about the chemistry of sulphur vulcanization.	07
Q.3	(a)	Explain the term 'temperature coefficient of vulcanization' with suitable example.	03
Q.3	(b)	•	04
Q.3	(c)	Discuss in detail about the mercapto accelerator.	07
C	(-)	OR	
Q.3	(a)		03
Q.3	(b)	· · · · · · · · · · · · · · · · · · ·	04
		manufacturer of particular rubber product?	
Q.3	(c)	Discuss in detail about the benzothiazole sulfenamide accelerators.	07
Q.4	(a)	Write a brief note on sulphur monochloride cure.	03

Differentiate the hot air vulcanization and steam vulcanization.

Discuss the advantages and disadvantages of peroxide cure.

Q.4 (b)

Q.4 (c)

OR PTO..

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04

07

Q.4	(a)	Write in brief about quinone dioxime cure.	03
Q.4	(b)	With neat sketch, explain the vulcanization phases observed during the free heating.	04
Q.4	(c)	With reaction chemistry, explain the peroxide vulcanization of unsaturated rubber.	07
Q.5	(a)	What do you mean by 'ballotini'? Why is it used?	03
Q.5	(b)	Explain the construction and working of autoclave.	04
Q.5	(c)	Write on given features with respect to microwave curing:(i)Compounding	07
		(ii)Applications	
		OR	
Q.5	(a)	Write in brief about sulphur monochloride cure.	03
Q.5	(b)	Explain working principle of fluidized bed vulcanization technique.	04
Q.5	(c)	Discuss electron beam vulcanization technique.	07
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