Seat No.:	Enrolment No
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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) - EXAMINATION - SUMMER 2017

Sub	ject	Code: Vulcanization Date: 05/05/2017	
Sub	ject	Name: 2152601	
Tin	ne: 02	2:30 PM to 05:00 PM Total Marks: 70	
Insti	ruction	ns:	
		Attempt all questions. 2. Make suitable assumptions wherever necessary.	
	3.	Draw figures wherever necessary 4. Figures to the right indicates full marks.	
	_	Answer the following	14
	1.	Define the term 'Dynamic Vulcanization'.	
	2.	List any two major components of structure of rubber vulcanizate.	
	3.	Give any two advantages of insoluble sulphur.	
	4. ~	What do you mean by crosslinking efficiency?	
	5.	Write down the major advantages of moving die rheometer over oscillating disc rheometer.	
	6.	What do you mean by sulphur donor?	
	7.	Mention the role of accelerator in sulphur vulcanization.	
	8.	Write down an equation representing assessment of state of cure by physical method.	
	9.	For which rubber products xanthate accelerator is uded?	
	10.	Draw any one structure of peroxide without carbonyl group.	
	11.	Give any two examples of co-agent.	
	12.	What do soon was a large state of pressureless vulcanization technique?	
	13.	Which are the different ways to come out unleading in materia.	
	14.	Which are the different ways to carry out vulcanization in water?	
Q.2	(a)	Why sulphur is used as universal vulcanizing agent?	03
Q.2	(b)	Differentiate vulcanized rubber and unvulcanized rubber.	04
Q.2	(c)	With labeled diagram explain the construction and working of oscillating disc rheometer. OR	07
Q.2	(c)	With labeled diagram, explain the characteristic features of rheolgraph.	07
Q.3	(a)	Explain in brief about the conventional vulcanization system.	03
Q.3	(b)	Write a short note on shawbury curometer.	04
Q.3	(c)	Discuss in detail about zinc dithiocarbamates accelerator.	07
_		OR	
Q.3	(a)	Explain in brief about the efficient vulcanization system.	03
Q.3	(b)	Write a short note on JSR vulcameter.	04
Q.3	(c)	Discuss in detail about Guanidine accelerator.	07
Q.4	(a)	Give the characteristics of peroxide containing carbonyl group.	03
Q.4	(b)	With suitable reaction chemistry, explain the vulcanization by phenol formaldehyde resin.	04
Q.4	(c)	Give importance of uniform state of cure. Explain the vulcanization of thick wall article. OR	07
Q.4	(a)	Give the characteristics of peroxides without carbonyl group.	03
Q.4	(b)	With suitable reaction chemistry, explain the vulcanization of rubber by metal oxide.	04
Q.4	(c)	Discuss the limitations of vulcanization temperature.	07
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Q.5	(a)	Vulcanization by dielectric heating in press is not carried out in rubber industry-why?	03
Q.5	(b)	What are the advantages and disadvantages of autoclave curing?	04
Q.5	(c)	Discuss in detail about the vulcanization by fluidized bed.	07
		OR	
Q.5	(a)	Write down the basic principle of high frequency preheating.	03
Q.5	(b)	What are the advantages and disadvantages of saturated steam vulcanization.	04
Q.5	(c)	Discuss in detail about the vulcanization by liquid curing method.	07
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