Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER • 2013

Subject code: 714006 **Date: 30-12-2013**

Subject Name: **Cleaner Production in Rubber Industries (I.D-I)**

Time: 10.30 am – 01.00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Discuss the classification of cleaner production techniques.	**07**
Q.1	**(b)**	Write about the barriers to the cleaner production.	**07**
Q.2	**(a)**	Discuss about the techniques which are not considered as cleaner production options.	**07**
Q.2	**(b)**	With suitable flow diagram, explain the processing of crepe rubber.	**07**
		OR	
Q.2	**(b)**	Describe the options of cleaner production in rubber industries with its benefits.	**07**
Q.3	**(a)**	How the latex industries with low water consumption differ from those with higher water consumption?	**06**
Q.3	**(b)**	Answer the following	
	i	Write down the limitations of technologies used to treat the latex waste water.	**04**
	ii	Explain the CT criterion: 2 with respect to block rubber industries.	**04**
		OR	
Q.3	**(a)**	How the latex industries with lower rubber loss differ from those with higher loss?	**07**
Q.3	**(b)**	Answer the following	
	i	Write down the full form of EMS. Also give its benefits.	**03**
	ii	Explain the CT criterion: 3 with respect to block rubber industries.	**04**
Q.4	**(a)**	Write a short note on waste water generation sources associated with tyre and tube industries.	**07**
Q.4	**(b)**	Answer the following	
	i	Summarize the characteristics of waste water generated from tyre and tube industries.	**04**
	ii	Give the MINAS for latex based products.	**03**
		OR	
Q.4	**(a)**	Write a short note on waste water generation sources associated with moulded, extruded, calendered and fabricated rubber products.	**07**

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Q.4 **(b)** Answer the following

	i	Summarize the characteristics of waste water generated from moulded, extruded, calendered and fabricated rubber products.	**04**
	ii	Give the MINAS for moulded, extruded, calendered and fabricated rubber products.	**03**
Q.5	**(a)**	Mention types of anaerobic process. Explain any one in detail.	**07**
Q.5	**(b)**	Answer the following	
	i	Give the classification of ponds. Also list the factors affecting the performance of ponds.	**04**
	ii	List the advantages of membrane technology over pond technology to treat rubber waste water.	**03**

OR

Q.5	**(a)**	Discuss in detail about the working of aerobic treatment units.	**07**
Q.5	**(b)**	Answer the following	
	i	Which types of changes can be implemented to upgrade the capacity of the pond?	**04**
	ii	Write a brief note on polishing pond.	**03**

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