

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE- IV<sup>th</sup> SEMESTER-EXAMINATION – MAY/JUNE- 2012

**Subject code: 142601**

**Date: 23/05/2012**

**Subject Name: Rubber Compounding Materials**

**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)** Answer the following. **06**

- (i) Discuss the importance of Peptisers in rubber Compounding.
- (ii) Give the difference between Paraffinic Oil & Naphthenic Oil.
- (iii) Write the function of Extenders.

**Q.1 (b)** Answer the following. **08**

- (i) Discuss in detail about Ester Plasticisers.
- (ii) Define the term 'Factice'. Factice are available in how many grades? Discuss any two in detail.

**Q. 2 (a)** Company has to make a microcellular Sheet of 25" X25" & 6 mm thickness. Find its manufacturing cost considering 30% expansion in mold release. **07**

**Q. 2 (b)** Discuss the importance of Accelerators in Rubber Product. Which properties are required for Accelerators? Write in detail about it. **07**

**OR**

**(b)** Short Note on Retarders. **07**

**Q. 3 (a)** Describe in detail about manufacturing of Carbon Black by Furnace process with diagram. **07**

**(b)** Define the term 'Ageing' for rubber product. Write in detail about factors affecting Ageing. **07**

**OR**

**Q. 3 (a)** List the different grades of Carbon Black. Write the properties & applications of any three grades. **07**

**(b)** Explain about Mechanism of Oxidation for Antioxidants. **07**

**Q. 4 (a)** Short Note on Organic Pigments. **07**

**(b)** "Textiles are used as reinforcing agents for rubber products". Justify the statement. **07**

**OR**

**Q. 4 (a)** Write in detail about Red Pigments. **07**

**(b)** Discuss in detail about Integral Bonding Additives & Stiffening Agents. **07**

**Q. 5 (a)** Define the term "Blowing Agents". Discuss the difference between Organic & Inorganic Blowing Agents. **04**

**(b)** Give the difference between Reinforcing Fillers & Inert fillers. **04**

**(c)** List the name of Organic fillers used in Rubber Industries. Write any three in detail. **06**

**Q. 5 (a)** Short note on Dinitroso Pentamethylene Tetramine Blowing agent. **04**

**(b)** Short note on China Clay. **04**

**(c)** Write in detail about Extensivity, Intensity & Geometrical Factor. **06**

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