

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2142601****Date: 06/06/2017****Subject Name: Rubber Compounding Materials****Time: 10:30 AM to 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** Answer the following. **14**
- 1 Write the name of the Flame Retarder.
 - 2 Which ingredient we have to add if we used silica above 15phr in compounding?
 - 3 Write the two name of Antioxidant used in rubber industry.
 - 4 Give the function of Filler.
 - 5 In which rubber compound ZnO is used as a curing agent?
 - 6 What is the chemical name of Pepton 22?
 - 7 Define the term “Softner”.
 - 8 Write the two chemical name of Organic Blowing agent.
 - 9 Give the criteria for selection of processing Oil.
 - 10 Write down the two name of Color and Pigment use in rubber industry.
 - 11 Define the term “Titanium White”.
 - 12 What do you mean by Art of Compounding?
 - 13 What is the principle of Compounding?
 - 14 Define the term “Blooming”.
- Q.2** (a) Give the Difference between Ground limestone and Ground whiting. **03**
 (b) List out the types of Clays and explain any two. **04**
 (c) Explain the manufacturing process of Zno in detail. **07**
- OR**
- (c) Explain the Compounds of Aluminum used in Rubber industry. **07**
- Q.3** (a) Write down the classification of Rubber Additives. **03**
 (b) Give the importance of Recurring Theories. **04**
 (c) Explain the Autoxidation of Hydrocarbon polymers in detail. **07**
- OR**
- Q.3** (a) What do you mean by Synergism? **03**
 (b) Which important factors must be considered when selecting an antioxidant system? **04**
 (c) Short note on Amine Antioxidants. **07**
- Q.4** (a) Define the term Plasticizers & give its importance in Rubber compounding. **03**
 (b) What is the difference between Golden Factice and Brown Factice? **04**
 (c) Explain the Effect of Properties of Carbon Black on properties of rubber vulcanizate. **07**

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| Q.4 | (a) | Give the importance of Peptizer in rubber industry. | 03 |
| | (b) | List out the classification of Pigments & explain any one. | 04 |
| | (c) | Explain the “Furnace process” with flow diagram in detail. | 07 |
| Q.5 | (a) | What do you mean by Art of compounding? | 03 |
| | (b) | Write about the “Dinitroso Pentamethylene Tetramine.” | 04 |
| | (c) | Your company receives an order of 6 Lakh piece of Rubber Suspension Bush to be supplied annually to a Car manufacturing company. The weight of a Rubber Suspension Bush is 60 gram. You are asked (1) To give the cost of one Bush to your boss. (2) To record type of Press & its Steam requirement. | 07 |

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| Q.5 | (a) | Write about the Fatty acids & their derivatives. | 03 |
| | (b) | Explain in detail about Mechanism of Oxidation. | 04 |
| | (c) | List the name of Organic Fillers. Write in detail about any three. | 07 |
