

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV(NEW) EXAMINATION – WINTER 2022****Subject Code:3142601****Date:13-12-2022****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.
4. Simple and non-programmable scientific calculators are allowed.

**MARKS**

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|------------|---|-----------|
| <b>Q.1</b> | <b>(a)</b> What do you mean by Hydrocarbons? Give its examples.   | <b>03</b> |
|            | <b>(b)</b> Write a brief note about “Alkanes.”  | <b>04</b> |
|            | <b>(c)</b> List out the properties of Processing oil and explain it in detail.                              | <b>07</b> |
| <b>Q.2</b> | <b>(a)</b> Give the application of Rubber Processing Oil.   | <b>03</b> |
|            | <b>(b)</b> Write a brief note on Ester Plasticizers.  | <b>04</b> |
|            | <b>(c)</b> Classify the different additives with its function and examples.                                 | <b>07</b> |
|            | <b>OR</b>   |           |
|            | <b>(c)</b> Discuss in detail about the Recurring Theories.  | <b>07</b> |
| <b>Q.3</b> | <b>(a)</b> List out the Inorganic fillers used in Rubber Industry.  | <b>03</b> |
|            | <b>(b)</b> Give the difference between treated whiting and precipitate whiting.                             | <b>04</b> |
|            | <b>(c)</b> Explain the manufacturing process of Zinc Oxide.   | <b>07</b> |
|            | <b>OR</b>   |           |
| <b>Q.3</b> | <b>(a)</b> Give the importance of Magnesium carbonate in Rubber Industry.                                   | <b>03</b> |
|            | <b>(b)</b> Write a brief note on Compounds of Aluminum.   | <b>04</b> |
|            | <b>(c)</b> Explain in detail about other Inorganic compounds used in Rubber Industry.                       | <b>07</b> |
| <b>Q.4</b> | <b>(a)</b> Give the importance of Factice in Rubber Industries.   | <b>03</b> |
|            | <b>(b)</b> What do you mean by Blooming? Explain with suitable example.                                     | <b>04</b> |
|            | <b>(c)</b> Explain in detail about Peptizer used in Rubber Industries                                       | <b>07</b> |
|            | <b>OR</b>   |           |
| <b>Q.4</b> | <b>(a)</b> Give the difference between Organic blowing agent and Inorganic blowing agent.                   | <b>03</b> |
|            | <b>(b)</b> What do you mean by Bleeding? Explain with suitable example.                                     | <b>04</b> |
|            | <b>(c)</b> Explain in detail about the Color and Pigment used in Rubber Industries.                         | <b>07</b> |
| <b>Q.5</b> | <b>(a)</b> List out the different grades of Silica and give its importance.                                 | <b>03</b> |
|            | <b>(b)</b> Give the brief note on Compounding of Vulcanizate properties.                                    | <b>04</b> |
|            | <b>(c)</b> List out the different carbon black used in Rubber Industry and Explain its Properties in detail | <b>07</b> |
|            | <b>OR</b>   |           |
| <b>Q.5</b> | <b>(a)</b> “Wax is preferable or not” justify the statement   | <b>03</b> |
|            | <b>(b)</b> How to Calculate compound specific gravity of a recipe. Explain it with Suitable example.        | <b>04</b> |
|            | <b>(c)</b> Explain in detail about Furnace Process.   | <b>07</b> |

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