

Enrolment No. _____

Date: 17-06-2013

Time: 10:30am – 01:00pm

Total Marks: 70

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

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|-------------|---|-------------|
| Q. 1 | (i) Describe the term: “Glass Transition Temperature”. | (14) |
| | (ii) “NR is having excellent tensile strength”. Justify the statement. | |
| | (iii) Give the synthesis reaction of poly -chloroprene rubber. | |
| | (iv) Write the equation for Gaussian theory of rubber elast ty. | |
| | (v) List the name of non-sulphur vulcanizing agents. | |
| | (vi) What is mastication? What is the need to masticate the Rubber? | |
| | (vii) What is the function of retarders? Write the name of a y one retarder. | |
| Q. 2 | (a) Short note on “Pale Crepe”. | (07) |
| | (b) Explain in detail about classification of polymers. | (07) |
| | OR | |
| | (b) Explain in detail about (i) Hevea plus MG Rubber (ii) rior Processing Rubber | (07) |
| | (iii) Deproteinized Natural Rubber. | |
| Q. 3 | (a) Write the importance of third diene monomer in chemist y of EPDM and give their name and structures. | (07) |
| | (b) Give the synthesis reaction of IIR. Explain its chemis ry, properties and applications. | (07) |
| | OR | |
| Q. 3 | (a) Answer the following. | |
| | (i) List the available types of silicone rubber. | (02) |
| | (ii) Explain the chemistry of silicone rubber by giving the structure. | (05) |
| | (b) Write the synthesis reaction of NBR. Explain its chemistry, properties and applications | (07) |
| Q. 4 | (a) Write down the primary requirements concerning structu for effective rubbery properties. Write down the factors determining for the Tg. | (07) |
| | (b) Explain in detail the Gaussian theory of rubber elasticity. | (07) |
| | OR | |
| Q. 4 | (a) Short note on chain flexibility and weak links. | (07) |
| | (b) Discuss about Rubber elasticity in shear and compression. | (07) |
| | -----P.T.O.----- | |
| Q. 5 | (a) Write about the classification of fillers in detail. | (07) |
| | (b) Describe the construction and working principal of internal mixers. | (07) |
| | OR | |
| Q. 5 | (a) Explain about Antidegradants and Accelerators in detail. | (07) |
| | (b) Explain the process of open mill with the diagram show ng the features of a two – roll open mill. | (07) |
