Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**M. E. - SEMESTER – III • EXAMINATION – WINTER • 2013**

**Subject code: 734003** **Date: 28-11-2013**

**Subject Name: Powder & Particulate Technology**

**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** Answer the following.

**(a)** Write the importance of Partitioning agent in Powdered rubber preparation. Discuss the effect of type and quantity of Partitioning agent on powdered rubber properties. **(07)**

**(b)** How Powdered Rubber is advantageous in adhesives and dough applications relative to Bale rubber? Explain in detail. **(07)**

**Q. 2** **(a)** "Particle –matrix Compatibility relates to the ability of the Polymer to coat and adhere to the filler." Justify the Statement. **(07)**

**(b)** Discuss about the Economics of Powdered Rubber systems. **(07)**

**OR**

**Q. 2** **(b)** "Better Environmental conditions are possible by Powdered Rubber Technology." Justify the statement. **(07)**

**Q. 3** Write in detail about the equipment used for Powder preblend operation and explain the preblend process. **(14)**

**OR**

**Q. 3** List the basic steps for the conversion of Powdered Rubber Preblend into usable compounded rubber. Explain processing of Preblend for mixing. **(14)**

**Q. 4** Draw the Schematic diagram of Compactor unit for Powder Preblend and explain the extrusion of Preblend. **(14)**

**OR**

**Q. 4** List the type of Extruders for Powder Preblend and discuss their advantages. **(14)**

**Q. 5** Describe the Test method for assessment of dust in solid rubber chemicals with diagram of apparatus. **(14)**

**OR**

**Q. 5** Discuss the Cabot Torn Surface method and correlate with T/50 test for dispersion of compounding ingredients with Powdered rubber by giving schematic representation. **(14)**

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