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## **GUJARAT TECHNOLOGICAL UNIVERSITY**

ME – SEMESTER III (OLD) – EXAMINATION – WINTER-2016

Subject Code: 730904 Date:27/10/2016 **Subject Name: Design of Material Handling Equipments** Time: 02:30 pm to 05:00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. 0.1 Discuss the criterion for selection of material handling equipment for coal **07** (a) handling plant. What do you understand by Consumer packages and Industrial packages. 07 **(b)** Elaborate it. **Q.2** Explain failure analysis procedure used for material handling equipment – hoist **07** (a) crane. Discuss in detail bucket elevator with sketch. **07 (b) (b)** Draw a plant layout of material handling equipment in Packaging Industry. **07** State and explain the basic principles used for designing materials handling **Q.3** (a) 07 equipments in detail. **(b)** List and explain various power drives used as drives for hoisting gear. 07 OR **Q.3** Define the term pulleys. List out its types and explain each one. 07 (a) Explain crane attachment for handling liquid materials. **(b)** 07 0.4 List the different types of magnetic separator used in Belt Conveyor also **07** (a) explain each one. Design Chain Drums for hoisting. **(b) 07** OR 0.4 Explain the different of stresses induced in steel wire ropes. Also explain wire (a) 07 ropes selection in detail. **(b)** List and explain safety devices of Elevators. 07 Give calculation to find endurance (fatigue strength) of steel wire ropes by **Q.5 07** (a) Zhitkov's Method. Explain the design of an E.O.T. crane main girder (box type) in detail. 07 **(b)** "Belt Conveyor is used for conveying wide range of materials", Justify the Q.5 07 (a) statement. **07 (b)** List out the prime factors affecting Handling costs.

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