

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER-III • EXAMINATION – SUMMER • 2014

Subject Code: 3330502

Date: 13-06-2014

Subject Name: Mechanical Operation

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.*
4. *Each question carry equal marks (14 marks)*
5. *Figures are compulsory wherever necessary.*

- Q:1 (a) Differentiate unit operation and unit process. 07
(b) Explain Differential analysis and cumulative analysis. 07
- Q:2 (a) Define : Bulk density, equivalent diameter, sphericity, , specific surface area, volume surface mean diameter, mass mean diameter and shape factor 07
(b) Derivation of formula for overall effectiveness of screen. 07
OR
(b) Write a note on vibrating screen. 07
- Q:3 (a) Classify size reduction equipments. 07
(b) Explain Rittingers law , Bond's law and Kick'law. 07
OR
- Q:3 (a) Principle, construction and working of Jaw crusher. 07
(b) Derivation of equation of angle of nip. 07
- Q:4 (a) Principle, construction and working of Cyclone separator . 07
(b) Classify equipments for liquid-solid separation . 07
OR
- Q:4 (a) Principle, construction and working of filter press. 07
(b) Advantages and disadvantages of centrifuge over filter press . 07
- Q:5 (a) Classify impellers and explain in brief . 07
(b) Derivation of equation for power consumption in agitation vessel. 07
OR
- Q5 (a) Construction and working of agitation vessel . 07
(b) Explain Banbury mixture. 07
