

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V • EXAMINATION – SUMMER • 2014

Subject Code: 150502

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.

Q.1 (a) With neat diagram explain construction and working of plate and frame filter press also state its advantages and limitations. **07**

(b) Write a short note on Ball Mill. **07**

Q.2 (a) List different types of industrial conveyers and explain any one in detail. **07**

(b) With neat diagram explain construction, working and applications of gravity thickener. **07**

OR

(b) Write statement and equation of Rittinger's law. A set of crushing rolls of 1400 mm diameter by 400 mm width of face. Minimum spacing between two rolls is 10 mm and the angle of nip is 30° . What is the maximum permissible size of feed? **07**

Q.3 (a) Write differences between Jaw crusher and gyratory crusher. **07**

(b) Discuss different parameters affecting screening operation. **07**

OR

Q.3 (a) With neat diagram explain 'particulate fluidization' and 'bubbling fluidization'. **07**

(b) Write a short note on 'cumulative analysis'. **07**

Q.4 (a) Explain characteristics, selection criteria and applications of paddles. **07**

(b) List out different solid mixing equipments and with neat diagram explain principle, construction, working and applications of any one of them. **07**

OR

Q.4 (a) Write a short note on 'hydro cyclones'. **07**

(b) Define: fluidization. Write five industrial applications of fluidization. **07**

Q.5 (a) Write a short note on 'batch centrifuge'. **07**

(b) With neat diagram explain different mechanisms of filtration. **07**

OR

Q.5 (a) Define: agitation. Enlist different types of flow pattern induced in an Agitated vessel (liquid). **07**

(b) Write all assumptions and derive equation for screen efficiency. **07**
