

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Tech. (Agril. Engg.)

Semester : IV (New)	Term : II	Academic Year : 2013-14
Course No. : APE 244	Title : Crop Process Engineering	
Credits : 3 (2+1)		
Day & Date : Tuesday, 06.05.2014	Time : 14.00 to 17.00	Total Marks : 80

- Note :
1. Solve ANY EIGHT questions from SECTION "A".
 2. All questions from SECTION "B" are compulsory.
 3. All questions carry equal marks.
 4. Draw neat diagrams wherever necessary.

SECTION "A"

- Q.1/ a) State objectives of the parboiling of paddy.
b) State any eight advantages of parboiling of paddy.
- Q.2 State the unit operations of the post harvest system of grain crops. Explain in brief about pre-drying (Field drying) and threshing operations.
- Q.3/ Enlist the various unit operations and equipments used in modern rice mill. Explain in brief about the Cleaning operation of paddy.
- Q.4 Enlist the important unit operations of pulse milling and explain in brief about the unit operations "Conditioning", "Dehusking and Splitting".
- Q.5 Describe in brief about the working of Attrition mills and Hammer mills.
- Q.6 Write short notes on (Any Two)
- 1) Oil Milling
 - 2) Banana Processing
 - 3) Rubber Roll Sheller.
- Q.7 a) How the maturity of onion is judged? What is the purpose of curing the onion?
b) Explain in brief about the processing of dried onion slices.
- Q.8 a) Explain in brief about Kick's law and Rittinger's Law.
b) How much power is required to crush the material at the feed rate of 3 tonnes per hour if 80 per cent of the feed material passes through the 4.75 mm sieve (IS sieve No.480) and 80 per cent of the product passes through 0.5 mm sieve (IS sieve No.50). The work index of the material is 6.30.
- Q.9 a) What are the various grades of Pomegranate Fruit? Enlist the processed products of pomegranate.
b) What is De-greening? Explain in brief about De-greening of Orange.
- Q.10' Explain the construction and working of Screw conveyor.

(P.T.O.)

SECTION "B"

Q.11 Match the pairs.

"A"

- e 1) Refrigeration
- f 2) 28% Total solids
- d 3) 70°C
- h 4) LSU dryer with 120°C
- g 5) Antifriction Bearings
- c 6) 125 to 425 gyrations per min.
- a 7) Vitamin C
- b 8) Peeling

"B"

- a) Orange Juice
- b) Potato
- c) Gyratory crusher
- d) Gelatinization Temperature
- e) Preservation by cold
- f) Tomato ketchup
- g) Belt conveyor
- h) CFTRI method of pulse milling

Q.12 Fill in the blanks.

- 1) Generally, for grain conveying, belt speed of 2.5 to 2.8 m/s is recommended.
- 2) The up and down moving string of buckets in bucket elevator are enclosed in elevator legs.
- 3) Screw conveyor requires relatively high power.
- 4) Compartment type paddy separators have low power requirements.
- 5) Grading in rice milling is generally refers to the separation of broken from the head rice.
- 6) A layer of endosperm between cotyledons and outer husk is present in most of the pulses.
- 7) Screens are generally constructed by perforated metal sheet or woven wire.
- 8) The Fineness modulus indicates the uniformity of grind in resultant product.

