

MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Tech. (Agril. Engg.)

Semester : IV (Old)	Term : II	Academic Year : 2018-19
Course No. : APE 244	Title : Crop Process Engineering	
Credits : 3 (2+1)	Time : 09.00 to 12.00	Total Marks : 80
Day & Date : Friday, 10.05.2019		

- 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.

$$E = C \left[\frac{1}{\pi p} - \frac{1}{\pi f} \right] \quad \text{SECTION "A"}$$

$$e = C \ln \left[\frac{\pi f}{\pi p} \right]$$

- Q.1 a) Explain Rittingers Law and Kick's Law.
b) In a wheat milling experiment it was found that power requirement to grind 4.33 mm sized wheat grains to flour size of 0.351 mm was 8 kW. Calculate the power requirement for milling of wheat by the same mill to flour size of 0.157 mm using (1) Rittingers Law and (2) Kick's Law. Feed rate of milling was 200 kg/h.
- Q.2 List out the different size reduction devices and explain the construction and working of Hammer mill with neat sketch.
- Q.3 What is parboiling? Enumerate the advantages and disadvantages of parboiling.
- Q.4 a) What are the different process products of pomegranate? Explain the process of preparation of pomegranate RTS with process flow chart.
b) Explain the process for preparation of banana powder.
- Q.5 Explain the process of dry and wet milling of pulses with flow process charts.
- Q.6 During the evaluation of an air screen grain cleaner with two screens the following were observed.
- The impurities present in feed were 6.5 %
 - The impurities present in clean grain were 0.5 %
 - The outflow of blower contained 0.2 % clean seed
 - The overflow of the 1st screen contained 1% clean seed
 - The underflow contained 0.5 % clean seed
- Compute the cleaning efficiency of the cleaner.
- Q.7 State the different types of separators. Explain the working principle of indented cylinder separator.

(P.T.O.)

- Q.8 Explain the construction and working of screw conveyor.
- Q.9 Enlist different methods of fruits and vegetables preservation. Explain in brief any four methods.
- Q.10 a) Explain in brief about different mixing equipments.
b) Write short note on oil milling.

SECTION "B"

Q.11 Define the following terms.

- | | |
|----------------------------|----------------------|
| 1) Cleaning | 2) Grading |
| 3) Head rice | 4) Terminal velocity |
| 5) Degree of grinding | 6) Pulse milling |
| 7) Effectiveness of screen | 8) Screening |

Q.12 Fill in the blanks.

- 1) _____ is best separator to separate mustard from wheat.
- 2) The wire mesh sieves are usually specified by _____ which is number of opening per linear inch.
- 3) In sieve analysis, the average size of particle (D) in mm is calculated by _____.
- 4) _____ indicates the uniformity of grind in resultant product.
- 5) The red colour of tomato is due to _____ pigments.
- 6) The process of size reduction which combines cutting and crushing is called _____.
- 7) Screw conveyors require relatively _____ power.
- 8) An endless belt operating between two pulleys with its load supported on idlers is called _____.

