



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Food Technology) 2021 Admission
III Semester Final Examination – February 2023

Pafe.2116

Fundamental Unit Operations in Food Processing (2+1)

Marks: 50
Time: 2 hours

- I Fill in the blanks** **(10x1=10)**
1. The arms of kneaders are of shape.
 2.separation uses a semi-permeable membrane for separation, based on the molecular size and molecular weight of the components.
 3. Filtration rate isproportional to the viscosity of liquid being filtered.
 4. The value of mixing index lies between
 5.indicates the uniformity of grind in a reduced material.
 6. The energy required for particle breakdownwith decrease in the size of the particles.
 7. If all the material during sieve analysis experiment is retained on the pan, then the fineness modulus of the sample is
 8.law gives good results for fine grinding.
 9.is the separation of solids from liquid by passing the flow of mixture through fine pores.
 10. Work index is proposed by
- II Write short notes on ANY FIVE of the following** **(5x2=10)**
1. What is screen analysis?
 2. Define Bond's law and work index.
 3. Enlist the different characteristics of an ideal size reducing machine.
 4. Classify the mechanical separations.
 5. What are the materials for membrane construction?
 6. Write short notes on liquid mixers.
 7. What is ultra-filtration?
- III Answer ANY FIVE of the following** **(5x4=20)**
1. Derive the equations for constant rate and constant pressure filtration processes.
 2. Classify the size reduction machines according to the methods used.
 3. Derive an equation for rates of accomplishing mixing.
 4. What is membrane? Explain the types of membranes used in membrane separation process.
 5. Explain about the powder and particle mixers with neat sketch.
 6. Write short notes on 'slicer' and 'dicer'.
 7. A pulse mill grinds Bengal gram of 2 mm volume surface mean diameter to powder of 0.1 mm volume surface mean diameter. Determine the ratio of Rittinger's to Kick's constant in the grinding operation.
- IV Write an essay on ANY ONE of the following** **(1x10=10)**
1. Write about types of extruders and explain different zones in an extruder with a neat sketch.
 2. Briefly explain the tumbling mills and attrition mills with the help of a labelled diagram.
