## KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2013 Admission III<sup>rd</sup> Semester Final Examination- January-2015

		No: Fden.2104 Crop Process engineering (2+1)	Marks: 50.00 Time: 2 hours
I	F	ill up the blanks/State True or False	(10 x 1=10)
1	1	. EMC depends on RH and	()
	2	2. Hygroscopic material does not absorb moisture from the atmosphere	
	3	3. Wet bulb temperature is always lower than dry bulb temperature	
	4	. Changes of state occurs in latent heat	
	5	. Overall thermal efficiency is the ratio of amount of heat supplied to the	ne amount of heat utilized
	6		
	7	. Microwave heats the food material due to dielectric properties	
	8	. The power consumption is higher in screw conveyor compared to belt	conveyor
	9		
	1	0. Parboiling of paddy attains whenof starch occurs	
II W	۷r	ite short notes on any FIVE questions	(5 x 2=10)
	1.	Write the working principle of a gyratory crusher	
3	2.	Explain the rice by products	
	3.	Draw a neat diagram of centrifugal dehusker and label the parts	
4	4.	Draw a neat diagram of abrasion type polisher and label the parts	
Ę	5.	Briefly explain grain decorticator	
(	6.	Briefly explain the oil extraction using screw press	
7	7.	Define Bond's ,Kick's and Rittinger's laws of crushing	
III V	Wı	ite short notes on any FIVE questions	(5 x 4=20)
1	l.	Explain LSU dryer with the help of sketch	
2	2.	With diagram explain the working operation of rubber roll sheller	
3	3.	Explain the wheat flour milling operations	
4	l.	Explain the solvent extraction process with example	
5	j.	With schematic diagram explain the plate and frame type oil extraction	unit
6	i.	Explain the working operation of hammer mill	
7	7.	Air carrying particles of density 1000 kg/m <sup>3</sup> and an average diameter of	f 25 micron enters a
		cyclone of 50 cm diameter at a linear velocity of 20 m/s .Calculate the c	

radically in the cyclone and the separation factors of the cyclone

## IV Write an essay on any ONE

 $(1 \times 10 = 10)$ 

Sorghum (5.0 mm) size was milled by a burr mill at two different gaps between the burr stones.
The flour was analysed by IS sieves for particle size determination. The power required to mill at first setting was 505 KW.

Calculate the power requirement of the mill in the second setting using Rittinger's law and Kick's law . The capacity of the mill was  $115\ kg/h$ 

IS sieve No	Mass fraction of flour retained over sieve,g		
	I Setting	II Setting	
100	10.5		
70	16.2	20.0	
50	20	25	
40	26	31	
30	86	69	
20	92	55	
15	18.2	8.4	
Pan	0.0	11.7	

2. With diagrams explain any four cleaners and graders used in post harvest operations

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