KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2013 Admission

III[rd] Semester Final Examination- January-2015

Cat. No: Fden.2104 **Marks: 50.00**

Title: Crop Process engineering (2+1) **Time: 2 hours**

I Fill up the blanks/State True or False **(10 x 1=10)**

1. EMC depends on RH and_____
2. Hygroscopic material does not absorb moisture from the atmosphere
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 amount of heat utilized
6. Rubber roll sheller is also used for polishing rice
7. Microwave heats the food material due to dielectric properties
8. The power consumption is higher in screw conveyor compared to belt conveyor
9. The speed ratio of break rolls in wheat milling 2.5:1
10. Parboiling of paddy attains when _____of starch occurs

II Write short notes on any FIVE questions **(5 x 2=10)**

1. Write the working principle of a gyratory crusher
2. Explain the rice by products
3. Draw a neat diagram of centrifugal dehusker and label the parts
4. Draw a neat diagram of abrasion type polisher and label the parts
5. Briefly explain grain decorticator
6. Briefly explain the oil extraction using screw press
7. Define Bond's ,Kick's and Rittinger's laws of crushing

III Write short notes on any FIVE questions **(5 x 4=20)**

1. Explain LSU dryer with the help of sketch
2. With diagram explain the working operation of rubber roll sheller
3. Explain the wheat flour milling operations
4. Explain the solvent extraction process with example
5. With schematic diagram explain the plate and frame type oil extraction unit
6. Explain the working operation of hammer mill
7. Air carrying particles of density 1000 kg/m ^{3} and an average diameter of 25 micron enters a cyclone of 50 cm diameter at a linear velocity of 20 m/s .Calculate the centrifugal force acting radically in the cyclone and the separation factors of the cyclone

IV Write an essay on any ONE **(1 x 10=10)**

1. 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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