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GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Seventh Semester – Regular) Examinations, November – 2022
BPCAG7020 – Post Harvest Engineering of Cereals, Pulses and Oilseeds
 (AGE)

Time: 3 hrs

Maximum: 70 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Short Answer Questions)

(1 x 10 =10 Marks)

Q.1. Answer ALL questions

- a. Specific Gravity Separator works on the principle of.....
 - (i) Characteristics of grain to flow down over an inclined surface
 - (ii) Flotation of the particles due to upward movement of air
 - (iii). both (1) and (b)
 - (iv). None of these
- b. Method of conveying granular materials with high speed of air current is called as....
 - (i). Belt conveyer
 - (ii). Screw conveyer
 - (iii). Bucket elevator
 - (iv) Pneumatic conveyer
- c. In Rubber roll sheller, the difference in linear speed between faster and slower roller should be...
 - (i) 2 m/s
 - (ii) 4 m/s
 - (iii). 3 m/s
 - (iv). 5 m/s
- d. The vertical cone polisher removes the bran from brown rice based on the principle....
 - (i). Shearing
 - (ii). Abrasion
 - (iii) Impact
 - (iv) Grinding
- e. The ‘R’ pocket type disc separator is used for...
 - (i). to separate flat seed from round seed
 - (ii) to separate immature paddy grains from whole rice
 - (iii) to separate broken rice from whole rice
 - (iv). to separate Head rice from Whole rice
- f. Parboiling of paddy is done to
 - (i) Achieve maximum recover of Head rice
 - (ii) Minimise the broken percentage
 - (iii) Reduce the milling losses
 - (iv) All of the above
- g. Are the statements about the rice milling true?

Statement 1: Sifting is a process to remove impurities from milled rice

Statement 2: Pre-cleaning is removing of impurities from milled rice

 - (i). True, False
 - (ii) True, True
 - (iii) False, True
 - (iv) False, False
- h. What is the Milling Degree
 - (i) Related to bran
 - (ii) Related to germ
 - (iii) Related to endosperm
 - (iv) Related to husk
- i. What is the Mist Polishing of Rice
 - (i) Spraying water mist on rice surface
 - (ii) Removing fungi from rice surface
 - (iii) Removing bran from the rice
 - (iv) Removing endosperm from the rice grain
- j. Statement 1: During de-hulling of rice, shearing action is used

Statement 2: During milling of rice, the rice kernel is subjected to rubbing action

 - (i) True, False
 - (ii) True, True
 - (iii) False, False
 - (iv) False, True

PART – B: (Short Answer Questions)

(2 x 10 = 20 Marks)

Q.2. Answer ALL questions

- a. Define Scalping and Grading process in Paddy milling
- b. Indicate by which action/force hulling / dehusking takes place for below said huller

- (1). Engelberg huller (2). Under-runner disk sheller / huller (3). Centrifugal dehusker / sheller
(4). Rubber roll sheller

- c. Define Milling of Paddy and Hulling of paddy
d. State the Salient Features of the Centrifugal dehusker use in Rice Milling Industry
e. State the different components (parts) of Tray type paddy separators use to separate unhusked / unshelled paddy in Rice Milling.
f. Define Whitening or Polishing of brown rice and which two processes used to remove the bran layer from the brown rice
g. Write on the basis of which properties the below said separators separate the grain materials
(1). Disk separator (2). Inclined Draper (3). Fluidized bed separator (4). Magnetic Separator
h. Express the working principle of Pneumatic and aspirator separator use in Rice milling.
i. 100 kg of paddy contains 25% moisture content (wb), what is the moisture content (db) of the paddy.
j. State the basic unit operations follows in commercial Rice Mill

PART – C: (Long Answer Questions)

(10 x 4 = 40 Marks)

Answer ALL questions

	Marks
3. a. Enlist the Hulling / Dehusking Machines use in Rice Milling and describe the working principal of Rubber Roll Sheller/Husker	05
b. Describe the working of Vertical whitening cone machine use in Rice Milling	05
(OR)	
c. State the different components (parts) of Compartment type paddy separator and explain it working to separate the paddy in Rice milling:	06
d. State the difference in working of Horizontal abrasive polisher and Horizontal friction polisher in Rice Milling:	04
4. a. Potato Flakes (moisture content 75% wb) are being dried in concurrent flow dryer. It was found that 70% of original water has been removed by the dryer. Calculate the moisture content in dried potatoes flakes on db dry basis).	06
b. Express the equation of Coefficient of Hulling and Coefficient of wholeness and write the equation of overall milling efficiency of any huller or sheller machine use in Rice Milling	04
(OR)	
c. With Schematic diagram show the different parts of Rubber Roll Sheller/Husker and explain the working of two rubber rolls to dehull the paddy.	06
d. Explain the working of Oscillating grading sieves which is widely used in Rice Milling to grade the Milled rice	04
5. a. Describe Glazing process given to head rice to appear the head rice very shiny and more transparent	04
b. Explain the construction and working of Under Runner Disk huller/sheller in paddy milling.	06
(OR)	
c. Describe the working of Specific Gravity Separator to separate the Paddy / rice in different grades.	06
d. Describe with specification and diagram the different types of Wire mesh screens use in screener cum cleaner.	04
6. a. In an experiment on drying an amount of 25 gram of moisture was removed from the product during 10 minutes time interval. The initial moisture of 1 kg product is 30% (db). Calculate Drying rate in gram of water per minute per 100gm of bone dry material.	06
b. State the different types of screens use in screener cum grader machine and explain the working of Revolving Screen / Cylinder sorter for paddy/rice cleaning.	04
(OR)	
c. Describe the working of VIBRATORY AIR SCREEN CLEANER use in Rice Milling	06
d. State the grain particle paths in cleaner and separators during screening and separating process	04

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