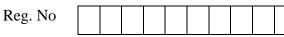
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**GIET UNIVERSITY, GUNUPUR – 765022** 

B. Tech (Seventh Semester - Regular) Examinations, November - 2022

BPCAG7020 - Post Harvest Engineering of Cereals, Pulses and Oilseeds

(AGE)

Time: 3 hrs	(AGE) Maximum:	70 Marks
	wer ALL Questions	
The figures in the PART – A: (Short Answer Questions)	right hand margin indicate marks. (1 x 10 =1	() Marke)
Q.1. Answer ALL questions	(1 x 10 -1	0 WIAI KS)
a. Specific Gravity Separator works on the princ	iple of	
(i) Characteristics of grain to flow dow inclined surface	n over an (ii) Flotation of the particles due to upward of air	movement
(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 conveyor	(ii). Screw conveyor	
(iii). Bucket elevator	(iv) Pneumatic conveyor	
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 f	rom 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	2	
Statement 1: Sifting is a process to remove in	purities from milled rice	
Statement 2: Pre-cleaning is removing of imp	urities from milled rice	
(i). True, False	(ii) True, True	
(iii) False, True	(iv) False, False	
h. What is the Milling Degree	(17) 1 4150, 1 4150	
(i) Related to bran	(ii) Related to germ	
(iii) Related to endosperm	(iv) Related to husk	
-	(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 gra	in
j. Statement 1: During de-hulling of rice, sheari	-	
Statement 2: During milling of rice, the rice k		
(i) True, False	(ii) True, True	
(iii) False, False	(iv) False, True	
PART – B: (Short Answer Questions)	$(2 \times 10 = 2)$	0 Marks)

Q.2. Answer ALL questions

Indicate by which action/force hulling / dehusking takes place for below said huller b.

Define Scalping and Grading process in Paddy milling a.

(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)**

Answer ALL questions

3. a. Enlist the Hulling / Dehusking Machines use in Rice Milling and describe the working principal of 05 Rubber Roll Sheller/Husker

(10 x 4 = 40 Marks)

Marks

05

06

04

b. Describe the working of Vertical whitening cone machine use in Rice Milling

(OR)

- c. State the different components (parts) of Compartment type paddy separator and explain it working to 06 separate the paddy in Rice milling:
- d. State the difference in working of Horizontal abrasive polisher and Horizontal friction polisher in Rice 04 Milling:
- 4. a. Potato Flakes (moisture content 75% wb) are being dried in concurrent flow dryer. It was found that 06 70% of original water has been removed by the dryer.

Calculate the moisture content in dried potatoes flakes on db dry basis).

b. Express the equation of Coefficient of Hulling and Coefficient of wholeness and write the equation of 04 overall milling efficiency of any huller or sheller machine use in Rice Milling

## (OR)

- c. With Schematic diagram show the different parts of Rubber Roll Sheller/Husker and explain the 06 working of two rubber rolls to dehull the paddy.
- d. Explain the working of Oscillating grading sieves which is widely used in Rice Milling to grade the 04 Milled rice
- 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.

(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 04 cleaner.
- 6. a. In an experiment on drying an amount of 25 gram of moisture was removed from the product during 10 06 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.
  - b. State the different types of screens use in screener cum grader machine and explain the working of 04 Revolving Screen / Cylinder sorter for paddy/rice cleaning.

#### (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

## --- End of Paper ---

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