Q.P. Code: 18AG0705 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations August-2021

AGRICULTURAL PROCESS ENGINEERING

(Agricultural Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	a	Define specific gravity. List out the methods for determination of specific gravity.	**2M**
	b	Define angle of repose and coefficient of friction.	**2M**
	c	What are the responsibilities of vibration screen?	**2M**
	d	What are the characteristics of comminuted products?	**2M**
	e	Explain hydrothermal treatment of wheat.	**2M**

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Briefly explain the importance of engineering properties of biomaterial materials.	**5M**
	b	Write the applications of Physical, mechanical, thermal and electrical properties of biological materials.	**5M**

OR

3	a	Explain roundness, roundness ratio and sphericity with suitable equations and neat sketch.	**5M**
	b	Define bulk density, true density, apparent density with related expressions.	**5M**

UNIT-II

4	a	What is a drag coefficient? Draw the forces acting on a body immersed in fluid	**5M**
	b	Define terminal velocity and derive equation for terminal velocity of a fluid.	**5M**

OR

5	a	Explain Rolling resistance with neat sketch	**5M**
	b	Explain the friction testing apparatus used in studying friction forces causing skinning of potatoes with neat sketch.	**5M**

UNIT-III

6	a	A screen is used to separate two components (A and B) from a feed where F, O and U are taken as mass flow rates of feed, overflow and underflow streams, respectively. The corresponding mass fraction of the oversize component A in these streams is XF, Xo and Xu. Derive an expression for overall effectiveness of this screen.	**5M**
	b	During the evaluation of an air screen grain cleaner with two screens the following data were observed. (i) The impurities present in feed were 6.5%, (ii) The impurities present in clean grain were 0.5%, (iii) The outflow of blower contained 0.2% clean seed, (iv) The overflow of 1st screen contained 1% clean seed and (v) The overflow contained 0.5% clean seed. Compute the cleaning efficiency of the cleaner.	**5M**

OR

7	a	Explain disk separator with neat sketch	5M
	b	Explain the working principle of indented cylinder separation with neat sketch.	5M

UNIT-IV

8	a	Explain working principle of Ball mill with neat sketch.	6M
	b	What would be the operating speed of rotations per minute of ball mill of 2000 mm diameter charged with 100 mm balls? Ball mill grinding solid matter.	4M

OR

9	a	Write the classification of size reduction equipment's.	5M
	b	Write the operation ranges of size reduction equipment for solids.	5M

UNIT-V

10	a	Write the importance of oil seed processing.	5M
	b	Explain oil expression and oil extraction.	5M

OR

11	a	Write the advantages and disadvantages of parboiling.	5M
	b	Explain CFTRI method of parboiling.	5M

END