53 (FPT 402) CLPR

2018

CEREALS AND LEGUMES PROCESSING TECHNOLOGY

Paper : FPT 402

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* What do you mean by screening? Discuss different types of screens with applications. 2+8

   (b) How the efficiency of a screen cleaner can be improved? 5

   (c) Discuss briefly Gyratory screens with *two* functions. 5

2. *(a)* What is meant by crushing efficiency? How the energy and power consumption play an important role in size reduction? 2+8

(b) Describe how Bond's law scores over other two grinding laws. 5

(c) Describe the working of a Jaw Crusher. 5

3. (a) How much power is required to crush 2*ton/hr* of a material if 80% of the feed passes through IS Sieve No. 480 (4·75*mm* opening) and 80% of the product posses through IS Sieve No. 50 (0·5*mm* opening) ? Given Work index of the material as 6·30. 10

(b) Sorghum (3·80*mm* size) was milled by a burr mill at two different gaps between the burr stores. The Flour was analysed by IS Sieves for particle size determination as shown in the table given below. The power requirement to mill Sorghum at I-setting was 5·0*kW*. Calculate the power requirement of the mill in second setting using 10

(i) Rittinger's law

(ii) Kick's law

The capacity of the mill was 5·0*kW*.

IS Sieve No.	Mass Fraction of the Flour retained over sieve, *g*	
	I-Setting	II-Setting
100	—	—
70	10·1	1·5
50	16·7	13·3
40	36·0	36·1
30	82·2	74·8
20	96·0	104·6
15	8·0	8·4
Pan	0·0	11·3

4. *(a)* What do you mean by parboiling? Discuss different methods of parboiling. Write *two* advantages and disadvantages of parboiling. 2+4+4

   (b) Discuss different types of Wheat Flour grade and their suitability for baked goods. 10

5. *(a)* Draw a basic flowchart of rice processing in a modern mill. 10

   (b) Explain in detail the construction and working of Engelberg Huller with neat sketches. 5+5

6. Discuss the different engineering and biological properties of agricultural materials with examples. 20

7. Write short notes on : 5×4=20

   (a) Popped Corn

   (b) Cyclone Separator

   (c) Vertical Whitening Cone

   (d) CFTRI process of pulse milling

   (e) Bond's law.
