Total number of printed pages = 4

19/4th Sem/UFET 402

2022

FOOD PRODUCT TECHNOLOGY - II (CEREALS & LEGUMES)

Full Marks – 100

Time – Three hours

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

Answer any *five* questions.

1. (a) A quartz mixture is screened through a 10 mesh screen. The cumulative screen analysis of the feed, overflow and underflow are given in the following table : 10

Mesh	Dp, mm	Cumulative mass fraction greater than Dp		
		Feed	Overflow	Underflow
4	4.699	0	0	0
8	2.362	0.15	0.43	0
10	1.651	0.47	0.85	0.195
28	0.589	0.94	1.00	0.91
65	0.208	0.98	--	0.975
Pan	--	1.00	--	1.00

[Turn over

Calculate the mass ratios of overflow to feed and underflow to feed, also, calculate the overall effectiveness of the screen.

(b) Explain in detail the construction and working of vibratory screen with neat sketches. 10

2. (a) What do you mean by size reduction ? Discuss the different forces during size reduction. 10

(b) In a wheat milling experiment it was found that to grind 4.33 mm sized grains to Indian Standard (IS) sieve 35 (0.351 mm opening), the power requirement was 8 kW. Calculate the power requirement for milling of wheat by the same mill to IS sieve 15 (0.157 mm opening) using : 10

(i) Rittnger's Law

(ii) Kick's Law

Given feed rate of the milling is 200 kg/hr.

3. (a) List out the name of milling equipments used for rice processing. 10

(b) Draw the line diagram / flowchart of rice processing in modern rice mill. 10

4. (a) Explain in details; the construction and working of rubber roll sheller with neat diagram. 10

(b) What do you mean by parboiling ? Narrate the different steps of parboiling. Write down two advantages and two disadvantages of parboiling. 2+4+2+2=10

5. Differentiate any *four* of the following : 5×4=20

(i) Ideal screen and Actual screen

(ii) True density and Bulk density

(iii) Specific heat and Latent heat

(iv) Angle of repose and Angle of internal friction

(v) Hard wheat and Soft wheat

(vi) Cereals and Pulses.

6. Write short notes on any *four* : 5×4=20

(i) Cyclone Separator

(ii) Grizzly Screen

(iii) Jaw Crusher

(iv) Bond's Law of Size reduction

(v) Sphericity

(vi) Factors affecting effectiveness of Screen.

7. Discuss / explain the different physical, frictional, mechanical and aerodynamic properties of agricultural food materials with suitable examples and diagrams. 20