

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
School of Health Sciences

End Semester Examination, December 2021

Programme Name: B.Tech Food Technology
Course Name : Post Harvest Engineering

Semester : 3rd
Duration : 03 hrs

Course Code : HFST_2001

Max. Marks : 100

Instructions : All the questions are compulsory

SECTION A

		Marks	
Q 1	.....is inter-disciplinary "Science and Technique" applied to agricultural produce after harvest.	1.5	CO1
Q2	India is responsible for .....of the total meat production in the world	1.5	CO1
Q3	Measurable quantitative and qualitative food loss in the postharvest system is defined as.....	1.5	CO1
Q4	.....scheme promotes integrated and complete cold chain facilities without any break from the farm gate to the consumer.	1.5	CO1
Q5	Removal of smaller contaminants from larger foods is called as	1.5	CO2
Q6	According to FSSAI, F&V products to be washed in	1.5	CO2
Q7	.....cylinder is used for decorticating.	1.5	CO3
Q8	LSU dryers are the types of.....dryers.	1.5	CO4
Q9	.....conveyor is most commonly used for vertical material handling.	1.5	CO4
Q10	.....is the pressure used during high pneumatic pressure soaking during parboiling.	1.5	CO5
Q11	.....forces are involved in the milling of crystalline foods.	1.5	CO4
Q12	The work required for crushing material is proportional to the logarithm of the ratio between initial and final diameters. This is the statement of a. Rittinger's law b. Kick's law c. Bond's law d. Boyle's law	1.5	CO3
Q13	Grading method depends primarily on a. Size of particles	1.5	CO2

	b. Specific gravity of the particles c. Maturity of the food d. All of the above		
Q14	Pneumatic separator makes use of the difference in a. Magnetic properties b. Electrical properties c. aerodynamic properties d. Moisture content	1.5	CO4
Q15	Which of the following is revolving screen a. Grizzly b. Shaking c. Trommel d. None	1.5	CO3
Q16	Pneumatic conveying is done under which of the mentioned condition (s)? a. High Pressure b. Vacuum c. Both a and b d. None of the above	1.5	CO4
Q17	Gelatinization process results in a. Increased Translucency b. loss of birefringence c. Increased viscosity d. All of the above	1.5	CO5
Q18	Heating of oilseeds during oil processing results in a. Higher oil yield b. Improved quality of oilseed meal c. Both a and b d. None of the above	1.5	CO5
Q19	The process of breaking down of solid material through the application of mechanical forces is called a. Centrifugation b. Filtering c. Size reduction d. agitation	1.5	CO4
Q20	Dehullers are used for a. Maize b. Paddy c. Groundnut d. Wheat	1.5	CO5

SECTION B

Short answer type questions

Q1	Differentiate between food loss and food waste? What are the types of post-harvest losses?	05 (2+3)	CO1
Q2	Briefly describe the working principle of destoner and electrostatic separators?	05	CO3

Q3	Explain the two types of oil recovery operations during oilseed processing?	05	CO5
Q4	a. What is the purpose of the parboiling? b. Elaborate the various steps involved in the parboiling of rice?	05 (2+3)	CO4

SECTION C

Case studies questions

Q1

a. What does the curve represents? Label the point A, B, C in the curve?
b. Give a detailed description of the curve with specific explanation of EMC and CMC?
c. Diced carrot, having a cube size of 1.5 cm and a moisture content of 88% (w/w basis), is dried in a fluidised bed dryer to a critical moisture content of 38% (w/w basis). During the constant rate period, water is removed at $7 \times 10^{-4} \text{ kg m}^{-2} \text{ s}^{-1}$. Calculate the time taken to complete the constant rate period. Assume that the density of fresh carrot is 840 kg m^{-3} .
d. Elaborate any one type of dryers used in grain drying with the help of diagram?

15
(3+5+4+3)

CO3

Q2

a. List the various material handling equipment used in the above plant layout?

15
(2+5+5+3)

CO4

	b. Discuss the various principles of operation of material handling systems? c. Write a brief note on one of the material handling equipment in the plant layout? d. Define unit load in material handling? Give an example of unit load method in the diagram?		
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SECTION D

Long answer type questions

Q1	Describe the steps involved in flour milling using a flow chart?	10	CO5
Q2	Differentiate between wet and dry-cleaning methods for fruits and vegetables? What are the various equipments used for the wet cleaning method? Define grading efficiency for the fruits and vegetables?	10 (3+5+2)	CO2