


Name:			
Enrolment No:			
UPES End Semester Examination, December 2024			
Course: Post-Harvest Engineering Program: B.Tech. Food Tech. Course Code: HSFT2001 Instructions: Read all the questions carefully.		Semester: III Duration: 3 Hours Max. Marks: 100	
Section A			
S. No.	Short answer questions/ MCQ/T&F (20Qx1.5M= 30 Marks)	Marks	COs
Q1	What is de-husking? a) Improving the quality of husk b) Removing the husk c) Reducing the quality of husk d) Removing bran but the husk	1.5	CO4
Q2	What is removed during polishing? a) Husk and bran b) Germ and bran c) Bran and endosperm d) Endosperm and husk	1.5	CO4
Q3	Parboiling of paddy is done to a) Achieve maximum recovery of head rice b) Minimise the broken percentage c) Reduce the milling losses d) All are correct	1.5	CO4
Q4	The removal of a few large particles in an initial process is: a) Scalping b) Cleaning c) Grading d) Sorting	1.5	CO3
Q5	Indented cylinder separator separates the grains based on: a) Weight b) Relative length c) Length d) All are correct	1.5	CO3
Q6	Which of the following dryers is used to dry very highly heat sensitive food commodities? a) Spray dryer b) Cabinet tray dryer c) Freeze dryer d) Fluidized bed dryer	1.5	CO5
Q7	The full form of LSU dryer is _____.	1.5	CO5

Q8	Evaporation, desiccation, and dehydration all mean the same thing. a) True b) False	1.5	CO5
Q9	Which of the following is an advantage/use of dried food items? a) Lesser cost and minimum labor required b) Limited processing equipment and minimum food storage requirements c) Reduction in distribution costs d) All of the mentioned	1.5	CO5
Q10	Which of the following dryers is the convection drying equipment with enclosed insulated chambers? a) Fluidized bed dryer b) Drum dryer c) Cabinet tray dryer d) Pneumatic dryer	1.5	CO5
Q11	Chilling injuries arising from the exposure of the products to a temperature a) above the normal physiological range b) below the normal physiological range c) under poor ventilation condition d) in CA storage	1.5	CO1
Q12	An example of enzymatic browning is _____.	1.5	CO1
Q13	The enzyme that is responsible for the browning of fruit and vegetables is a) Lipo-oxidase b) Polyphenol-oxidase c) Amylase d) Protease	1.5	CO1
Q14	Cleaning in agricultural processing generally means the _____ from the desired grains/products.	1.5	CO6
Q15	The choice of equipment for mechanical cleaning and grading is governed by the _____ properties of the grains.	1.5	CO4
Q16	Fruit and vegetables are generally _____ to remove dust, and dirt and adhering surface micro-flora.	1.5	CO6
Q17	If atmospheric humidity is high, natural air-drying needs _____.	1.5	CO6
Q18	Changes in the appearance quality of the fruit and vegetable are visible by following signs _____.	1.5	CO6
Q19	Some postharvest morphological changes are _____.	1.5	CO4
Q20	Enlist three signs of chilling injury in fruits.	1.5	CO4
Section B (Attempt any 4 questions) (4Qx5M=20 Marks)			
Q 1	What are post-harvest losses? List down reasons for losses and the importance of loss reduction	5	CO2
Q 2	List down the different criteria for the classification of dryers.	5	CO5
Q 3	Differentiate between drying and dehydration. Describe in brief the techniques for moisture content determination.	5	CO2
Q 4	Differentiate between qualitative loss, quantitative loss and wastage.	5	CO1

Q 5	What is osmotic dehydration? Write its advantages and disadvantages.	5	CO2
Section C (2Qx15M=30 Marks)			
Q 1	<p>Mina bought some rice from a local dealer, but the rice had a lot of different-sized grains and dust. Her friend Tina said that it is because it is not dried and packed properly. Is she right? (2 marks)</p> <p>a) True b) False</p> <p>List out various post-harvest methods that should be used for paddy. (3 marks)</p> <p>Also, describe the concepts of screen efficiency and screen effectiveness (10 marks)</p>	15	CO4
Q 2	<p>Sunil owns a food processing unit, and it produces dried seed mix as its final product. Also, he wants to add a processing line for milk powder. Answer the following questions:</p> <p>a) Describe the principle and working of 2 dryers he may be using for the production of dried seed mix. (10 marks)</p> <p>b) Suggest and describe in detail the most suitable dryer for the milk powder processing line. (5 marks)</p>	15	CO5
Section D (2Qx10M=20 Marks)			
Q 1	<p>Describe the following (2.5 marks each):</p> <p>a) Freeze dryer b) Wet basis moisture content c) Intermittent drying d) Blanching</p>	10	CO4
Q 2	<p>Differentiate between different heat transfer modes. What is the importance of moisture content in post-harvest management operations of food commodities? (4 Marks + 6 Marks)</p>	10	CO6