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**Reg. No. :**

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**Question Paper Code:UA105**

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

Professional Elective

Agricultural Engineering

21AGV105 FOOD PROCESS EQUIPMENT AND DESIGN

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

- Optimum moisture content of food grain for storage CO1-U  
(a) 5%                      (b) 10%                      (c) 15%                      (d) 20%
- Which of the following comes under grain processing in India? CO1-U  
(a) Oil seed processing                      (b) Wheat processing  
(c) Oil seed and wheat processing                      (d) None of the above
- Which of the following comes under grain processing in India? In drying process, final product is in the form of..... CO1-U  
(a) Slurry                      (b) Solution                      (c) Solid                      (d) Solvent concentration
- The major ingredient of sweetened soft drink is ..... CO1-U  
(a) Carbonated water                      (b) Hydrochloric acid                      (c) Phosphoric acid                      (d) Caffeine
- Which of the following products is a processed form of rice.....? CO1-U  
(a) Suji                      (b) Flakes                      (c) Bread                      (d) Concentrated
- The removal of moisture from the food materials for preservation is called as.... CO1-U  
(a) Dehydration                      (b) Freezing                      (c) Heat processing                      (d) Pasteurization
- Which of the following operation reduces the dietary fiber content in cereals? CO1-U  
(a) Drying                      (b) Retro gradation                      (c) Grinding                      (d) Milling

8. Subjecting fats to high temperature in the presence of oxygen such that fats deteriorate is called \_\_\_\_\_ CO1-U  
 (a) Hydrolytic rancidity (b) Auto-oxidation  
 (c) Thermal decomposition (d) Lipolysis
9. What gas is used for gas stunning in meat processing? CO1-U  
 (a) Argon (b) Helium (c) Carbon dioxide (d) Ammonia
10. Which one type of emulsion is milk? CO1-U  
 (a) Oil in water (b) Water in oil (c) Water in water (d) Oil in oil

PART – B (5 x 2= 10 Marks)

11. List out the organoleptic properties of food. CO1-U
12. Define blanching is food processing and types of foods are preserved by heat. CO1-U
13. Classify the various foods on the basis of their ease of spoilage. CO1-U
14. What are the different types of blanching? CO1-U
15. What are the types of food nutrition? CO1-U

PART – C (5 x 16= 80Marks)

16. (a) Can you discuss the role of safety standards and regulations in the application of engineering principles for food processing equipment? CO1-U (16)  
 Or  
 (b) How do safety standards and regulatory requirements influence the design considerations for pumps, particularly in industries with stringent safety measures? CO1-U (16)
17. (a) Analyze the impact of filter media selection on the design of filtration processes, considering factors such as particle size, flow rates, and the nature of the substances being filtered. CO1-U (16)  
 Or  
 (b) What are the fundamental design considerations for membrane separation processes, and how do they impact the efficiency and selectivity of the separation? CO1-U (16)
18. (a) What considerations should be made regarding the material of construction for the vacuum dryer, and how does it affect its performance? CO1-U (16)

Or

(b) What are the primary differences in design and operation between single-screw and twin-screw extruders, and how do these differences affect their respective applications? CO1-U (16)

19. (a) Discuss the critical steps involved in the installation of refrigeration systems for cold storage facilities. CO1-U (16)

Or

(b) Examine the design considerations for maintaining optimal temperature and humidity levels in Modified Atmospheric Storage to complement gas composition. CO1-U (16)

20. (a) What are the key operational parameters that need to be monitored when using agitators for mixing processes? CO1-U (16)

Or

(b) Explain the design consideration of size reduction equipment? CO1-U (16)

