Reg. No. : | | | | | | | | | | | | |

Question Paper Code: U7A02

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

Seventh Semester

Agricultural Engineering

21UAG702-CROP PROCESS ENGINEERING

(Regulations 2021)

Duration: Three hours Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. Food processing is the transformation of agricultural products into….? CO1- U

   (a) Grains (b) Food (c) Both A and B (d) Flour

2. Which of the following is an advantage of food processing? CO1- U

   (a) Availability of food (b) Removal of toxins

   (c) Add extra nutrients (d) All of the mentioned

3. Rabi crops are grown in _____ season CO1- U

   (a) Summer (b) Spring (c) Winter (d) Rainy

4. Growing different crops alternatly on the same land is technically called CO1- U

   (a) Crop alternation (b) Crop rotation (c) Crop revolution (d) Crop change

5. In the harvested crop the grain seed in separated from the chaff this process it called CO1- U

   (a) Threshing (b) Seeding (c) Ploughing (d) Weeding

6. What type of separator is used to remove impurities from grains based on density? CO1- U

   a) Cyclone b) Air screen c) Gravity d) Magnetic

7. The removal of moisture from the food materials for preservation is called as….. CO1- U

   (a) Dehydration (b) Freezing (c) Heat processing (d) Pasteurization

8. Seed of Horse gram contains…...inhibitor CO1- U
(a) Trypsin (b) Polyphenols (c) Aemagglutinins (d) All the above

9. ……is considered to be a progenitor of soybean CO1- U
(a) Glycine max (b) Glycine sinensis
(c) Glycine ussuriensis (d) Glycine usiiattisimum

10. In the processing of fruits and vegetables, which equipment is commonly used to remove peels and skins? CO1- U
(a) Fruit Washer (b) Peeler (c) Grinder (d) Separator

PART – B (5 x 2= 10Marks)

11. How does agricultural engineering support the development of precision agriculture technologies? CO1-U

12. What is a key feature of a jet mill in size reduction? CO1-U

13. What is the difference between of hardness and toughness? CO1-U

14. Explain the distillation process. CO1-U

15. Why are bulk material handling systems important in large-scale operations? CO1-U

PART – C (5 x 16= 80Marks)

16. (a) You are tasked with improving the food processing operations at a newly acquired food manufacturing facility. Explain the key principles and methods of food processing that you would apply to enhance efficiency, ensure food safety, and maintain product quality. Provide specific examples of how these principles can be implemented across different stages of food processing. CO2 –App (16)

Or

(b) Imagine you are tasked with optimizing the rice milling process at a newly established rice mill. Describe how you would ensure each stage of the process from cleaning to distribution meets high standards of efficiency and quality. Provide specific strategies for at least three key stages of the process. CO2 –App (16)

17. (a) Explain the detail about ball mill with neat sketch. Advantage and disadvantage. CO1 –U (16)

Or

(b) Illustate the detail about hammer mill. Advantage and disadvantage. CO1 –U (16)

18.	(a)	How do different types of mixers impact the processing of dry and paste materials in industrial applications? Discuss the practical considerations for selecting appropriate mixing methods based on the material properties and processing requirements.	CO2 –App	(16)
		Or		
	(b)	How does the processing of oil seeds affect the efficiency of oil extraction and the quality of the final oil product? Discuss the practical considerations for various processing methods and their impact on different types of oil seeds used in industrial applications.	CO2 –App	(16)
19.	(a)	Explain the detail about the method of separation, advantage and disadvantage.	CO1 –U	(16)
		Or		
	(b)	Illustate the detail about pheumatic separation with neat sketch, advantage and disadvantage.	CO1 –U	(16)
20.	(a)	How does a bucket elevator operate in the context of vertical material handling, and what are its practical advantages and disadvantages in various industrial applications? Discuss how the design parameters and operating conditions impact its efficiency and suitability for different materials. Include a neat sketch to illustrate the mechanism of a bucket elevator.	CO2 –App	(16)
		Or		
	(b)	How does a screw conveyor function in the context of material handling, and what are the practical considerations for optimizing its performance in different industrial applications? Discuss the advantages and disadvantages of screw conveyors, and explain how factors such as screw design, speed, and material characteristics influence their effectiveness. Provide a neat sketch to illustrate the mechanism of a screw conveyor	CO2 –App	(16)