QP Code: RD21BTECH281 | Reg. No | | | | | | | | | | | AY 21

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fifth Semester Regular) Examinations, December – 2023

21BAGES25003 – Agricultural Structure and Environmental Control

(AGE)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions	CO #	Blooms Level
a. State the salient features of Stanchion (Conventional) Barn.	CO4	K3
b. Define Milking parlour and Pen barn of Dairy barn.	CO3	K2
c. Define plane of rupture of shallow bin and deep bin grain storage structures.	CO3	K3
d. What are the disadvantages of Folding-Unit system of Poultry Farming?	CO2	K1
e. State the equation to calculate the Hydraulic Radius (R) of deep bin storage structure of grain.	CO3	K2

PART – B **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions	Marks	CO #	Blooms Level
2. a. Define Paddock of loose housing barn and show the different components of loose housing barn with schematic diagram.	7	CO3	K2
b. State specific dimension with line diagram of Mangers and Feed alley of conventional barn (stanchion barn) and what is function of it.	8	CO4	K2
(OR)			
c. Describe in detail barbed wire fencing for farm.	7	CO3	K2
d. State the difference between Tail-to-Tail System (Face out System) and Head-to-Head System (Face in System) of Stanchion barn (Conventional Barn).	8	CO4	K2
3.a. Describe in detail Brooder Management in Poultry house.	7	CO3	K2
b. Explain Angle of repose and Angle of rupture with schematic diagram.	8	CO4	K2
(OR)			
c. Describe in detail Pit Silo constructed on farm.	7	CO3	K2
d. Which are three agencies engaged mainly in large scale storage of grains? State the requirements of storage of grains	8	CO3	K2
4.a. Design a bag storage structures for storing 250 tonnes of Paddy. Assume reasonable data where ever necessary. Assume capacity of bag:	7	CO4	K2

Capacity of a bag of 100 x 60 x 30 cm = 75 kg of Paddy

b. State the relationship between Hd (Depth of Grain) and equivalent diameter of deep bin and how to calculate the hydraulic radius of deep bin? 8 CO3 K4

(OR)

c. Express the different shape of roofs structure with the specifications constructed in Poultry House. 7 CO4 K2

d. State the equation to calculate the hydraulic radius of shallow bin when a grain bin is referred to as a shallow bin. 8 CO3 K4

5.a. Express Airy's Equation to calculate lateral pressure for Shallow bin to store grains. 7 CO4 K4

b. Design a trench silo for a small farm having the following herd (cattle). The silage is fed for 160 days in a year at the rate 3 to 4 kg per 100 kg of animal body weight. 8 CO5 K6

Animal breed	Body weight per animal	Total number of animals	Rate of feeding per 100 kg of body weight.
Murrah buffaloes	680 kg	40	4.0
Haryana Cows	450 kg	60	3.0

Note: One cubic meter silage weigh = 650kg

(OR)

c. Describe specification and use of **Trap nests and Perches** of poultry house. 7 CO4 K4

d. Workout the economical diameter and depth of a silo to store sufficient quantity of silage for a head of 400 dairy cows having an average body weight of 450 kg each. The cows are fed silage for 200 days a year. 8 CO5 K6

Consider the following:

(i) One cubic meter silage weigh = 650 kg

(ii) 't' is the thickness of silage fed each day = 10cm

(iii) Each cow is fed 3 kg per 100kg of the body weight.

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