



**KERALA AGRICULTURAL UNIVERSITY**  
**B.Tech. (Agrl. Engg.) 2017 Admission**  
**V Semester Final Examination-January 2020**

Fape 3104

**Agricultural Structures and Environmental Control (2+1)**

**Marks: 50**

**Time: 2hours**

**I Fill up the following (10x1=10)**

1. The area occupied by residential buildings, storage buildings, dairy barn, poultry houses and other service building occupies \_\_\_\_\_ of the total farmstead area.
2. The modern dairy barn is basically \_\_\_\_\_ type barn.
3. Post harvest losses in India are estimated to be around \_\_\_\_\_ per cent, of which the losses during storage alone are estimated to be \_\_\_\_\_ per cent.
4. The safe storage moisture level of \_\_\_\_\_ for cereals and \_\_\_\_\_ for oil seeds (on wet basis) is advised for a safe storage period of 6-12 months.
5. The three types of poultry houses are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.

**Define the following**

6. BOD.
7. Pen barn.
8. Water activity.
9. Hermetic storage.
10. CAP.

**II Write Short notes on ANY FIVE of the following (5x2=10)**

1. What is a farmstead? What are the factors taken into consideration for planning a farmstead location?
2. Explain the concept of deep and shallow bins.
3. Write short note on BIS. Write its importance with context to dairy products.
4. Distinguish between face in and face out stanchion barn.
5. Explain pen barn and milking parlour.
6. Describe the mechanism of composting.
7. Explain the Janssen concept for designing a storage bin.

**III Answer ANY FIVE of the following. (5x4=20)**

1. Describe the constructional features of Bukhari type grains structures with the help of neat diagram.
2. Compare between Stall barn and loose housing barn? ( any 6 parameters)
3. Define an ideal grain storage facility. What are its requirements?
4. List the various primary water treatment processes. Explain any one in detail.
5. Work out the economical diameter and depth of a pit silo to store sufficient quantity of silage for a herd of 400 dairy cows having an average body weight of 400 kg each. The cows are fed silage for 220 days. Assume

**P T O**

One cubic meter silage weights = 600 kg

Thickness of silage fed per day = 12 cm

Each cow is fed 3 kg of silage per 100 kg of body weight.

6. Explain the concept of deep and shallow bins.
7. What is septic tank? Where should it be located? Design a septic tank for small family.

**IV Write an essay on ANY ONE of the following (1x10=10)**

1. Describe with the help of figure the moisture and temperature changes within food grains in a storage structures during.
  - A. Winter season.
  - B. Summer season.
2. Design and plan a layout of commercial bag and bulk storage facility to store wheat grain.

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