Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **14FP2013** | **Duration :** | **3hrs** |
| **Sub. Name :** | **STORAGE ENGINEERING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Predict the choice of regional storage structure that a farmer would opt for storing wheat. He requires a structure that can hold upto 4T of wheat. His farm is situated in a geographical location where there is an abundant supply of bamboo, timber and mud. Illustrate the parts of the structure of your choice with a neat sketch. | CO3 | 10 |
| b. | Define any three physical and thermal characteristics of grain. Discuss why it is important to study these characteristics in relation to storage structure design and cite how they can be measured. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Illustrate the different mechanisms of “Air Flow Vs Grain Flow” that can be provided in a thin-layer grain drying system | CO2 | 8 |
| b. | Discuss the construction of a LSU dryer and highlight its working illustrating why it is one of the most common dryers used for grain drying. | CO3 | 10 |
| c. | “Maida absorbs a lot of water during dough making”, interpret the cause of this phenomenon and indicate the role of temperature in the phenomenon? | CO1 | 2 |
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| 3. | a. | Show the different parts of a “Clamp Storage” used for storage of tubers. Discuss the possibility of modifications on the original clamp storage structure. | CO3 | 10 |
| b. | Speculate the different constructional parameters to be considered while designing a “Damp Proof” bag storage unit with gabled roof. | CO3 | 5 |
| c. | Illustrate the three fundamental anatomical parts of a wheat kernel. Recognize the nutritional content of these distinctive parts? | CO1 | 5 |
| (OR) | | | | |
| 4. | a. | Categories the types of Post Harvest Losses (PHL) in grains. Express how these PHLs are measured? | CO1 | 5 |
| b. | Discuss any five types of traditional storage structure commonly used for grain storage in India. | CO2 | 10 |
| c. | Illustrate the working of a fluidized bed dryer with a neat diagram. | CO2 | 5 |
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| 5. | a. | Simulate the working of the following MAP machines   1. Chamber Machines 2. Snorkel Machines | CO3 | 5  5 |
| b. | Summarise the different beetles that infect food and its commodities with neat sketches where required. | CO3 | 10 |
| (OR) | | | | |
| 6. |  | Outline the various sampling methods and equipments which can be used for sampling grains in bulk or bag storage | CO2 | 20 |
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| 7. | a. | Summarize the various devices used for testing the levels of fumigants in a storage warehouse. | CO3 | 10 |
|  | b. | Illustrate the manufacture of thermoformed trays methods with neat sketches. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Discuss the various evaporatory properties of a fumigant with examples of how it affects our choice of fumigant. | CO2 | 10 |
|  | b. | Outline the process of fumigation under closed gas-proof sheets used in fumigation of bag stored grain. | CO3 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. |  | Discuss the various pressure theories with respect to design of silo. | CO3 | 20 |

ALL THE BEST