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

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **14FP2007** | **Duration :** | **3hrs** |
| **Sub. Name :** | **UNIT OPERATIONS IN FOOD PROCESS ENGINEERING-I** | **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. | Explain the process of air oven dry method of moisture content determination of food grains. | CO1 | 10 |
| b. | Discuss in detail the fluidization process in a fluidized bed dryer with suitable diagram. | CO2 | 10 |
| (OR) | | | | |
| 2. | a. | Explain the working of cabinet tray dryer with a neat sketch. | CO1 | 10 |
| b. | Calculate the amount of moisture removed from 1000 kg of wheat grain for drying it from an initial moisture content of 22% (wet basis) to a final moisture content of 12% (wet basis). | CO3 | 10 |
|  |  |  |  |  |
| 3. |  | Explain the principle and working of plate and frame filter press with a neat sketch. Enlist the applications of filtration in food processing industries. | CO2 | 20 |
| (OR) | | | | |
| 4. | a. | Draw the figure of basket centrifuge and explain its working. Also enlist the applications of centrifugation process in food industries. | CO2 | 15 |
| b. | A tubular bowl centrifuge is used for separation of cream from milk which has the discharge diameters of 10 cm and 14 cm. If the density of milk is 1020 kg/m3 and the cream density is equal to 900 kg/m3, calculate the radius of the neutral zone. | CO3 | 5 |
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| 5. |  | Demonstrate the different types of feeding methods in triple effect evaporators with suitable figures. | CO3 | 20 |
| (OR) | | | | |
| 6. | a. | Draw neat figure indicating the various components of forced circulation evaporator and explain the working. | CO3 | 10 |
| b. | Explain the working of short tube falling film evaporator with figure. | CO1 | 10 |
|  |  |  |  |  |
| 7. | a. | Briefly discuss the theory of mixing of food materials. | CO1 | 10 |
| b. | Draw a neat diagram of kneader and explain its working. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Describe the working of planetary mixer with a neat sketch. Also enumerate the applications of mixing in food processing. | CO2 | 10 |
| b. | Explain the working of ribbon mixer with a neat diagram. | CO2 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Explain the working of disc attrition mills with diagrams. | CO2 | 10 |
| b. | Explain the working of hammer mill with suitable diagram. | CO2 | 10 |