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

**G:\logo and QP Template\logo 3 Feb 2018 final.tif**

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

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **14FP3019** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ADVANCES IN FOOD PROCESS ENGINEERING** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course Outcome** | **Marks** |
| 1. |  | Write a detailed note on thermal processing of food. | CO1 | 20 |
| (OR) | | | |  |
| 2. | a. | The most probable spore load in a canned food is 100 and the Do of the spore is 1.5 min. Calculate a target Fo for a thermal process such that the probability of spoilage is 1 in 100,000. If under the same condition C.*botulinum* type B has a Do of 0.2 min, would the target Fo value satisfy the minimum 12D process for C.*botulinum*? Assume an initial spore load of 1 per can for C.*botulinum* | CO3 | 10 |
| b. | The Fo for 99.999% inactivation of C.*botulinum*type B is 1.1 min. Calculate for 12 D inactivation and the F value at 275oF (135oC) when z=18oF. | CO3 | 10 |
|  |  |  |  |  |
| 3. | a. | Discuss principle and working of spray drier. | CO2 | 10 |
| b. | Paraphrase Ohmic heating of food in detail | CO3 | 10 |
| (OR) | | | |  |
| 4. | a. | Explain the principle and working of microwave dryer. | CO2 | 10 |
| b. | Summarize the components and working of twin screw extruder. | CO1 | 10 |
|  |  |  |  |  |
| 5. | a. | Write a note on freezing of food and its importance. | CO2 | 10 |
| b. | Discuss in detail about freeze drying of foods. | CO3 | 10 |
| (OR) | | | |  |
| 6. | a. | Describe membrane processing and Enumerate types of membrane. | CO3 | 10 |
| b. | Illustrate osmotic dehydration of food. | CO3 | 10 |
|  |  |  |  |  |
| 7. | a. | Discuss High Pressure Processing of food and its applications. | CO1 | 10 |
| b. | Analysepulsed electric field processing and its application in food processing. | CO2 | 10 |
| (OR) | | | |  |
| 8. | a. | Illustrate working of ultra sound equipment for food processing. | CO1 | 10 |
| b. | Discuss in detail about aseptic processing of food. | CO2 | 10 |
|  | |  |  |  |
|  | | **Compulsory:** |  |  |
| 9. | a. | Write a detailed note on Irradiation of food. | CO1 | 10 |
| b. | Explain principle and application of supercritical fluid extraction. | CO3 | 10 |