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

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

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| **Code :** | **14FP2016** | **Duration :** | **3hrs** |
| **Sub. Name :** | **PHYSICAL PROPERTIES OF FOOD MATERIALS** | **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. | Enumerate the details of role and applications of the following in food materials i. Size ii. Shape | CO1 | 10 |
| b. | Explain the following properties of food materials   1. Sphericity 2. Aspect ratio | CO2 | 10 |
| (OR) | | | | |
| 2. | a. | List out the different types of pores in foods. | CO1 | 4 |
| b. | Give the different types of porosities and Illustrate any one method to determine the porosity. | CO2 | 8 |
| c. | Describe in detail about construction and working of gas pycnometer. | CO3 | 8 |
|  |  |  |  |  |
| 3. | a. | Illustrate with a neat sketch working of any two types of viscometers widely used in food industries. | CO2 | 10 |
| b. | Describe the method for evaluation of gumminess and hardness of food materials. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Explain in detail about Farinograph. | CO3 | 10 |
| b. | Describe the factors affecting the rheological parameters of foods. | CO2 | 10 |
|  |  |  |  |  |
| 5. | a. | Derive an expression for thermal conductivity of gases from the principles of Kinetic Theory of gases. | CO1 | 10 |
| b. | Calculate the speciﬁc heat of wild rice grain at 20◦C approximate composition data given in table   |  |  | | --- | --- | | ***Component*** | ***Weight(%)*** | | Water | 8.5 | | Carbohydrate | 75.3 | | Protein | 14.1 | | Fat | 0.7 | | Ash | 1.4 | | CO2 | 10 |
| (OR) | | | | |
| 6. | a. | Explain the Guarded plate and comparison calorimeter methods available for determination thermal conductivity of foods. | CO2 | 10 |
| b. | Describe with a neat sketch the principle and working of DSC. | CO1 | 10 |
|  |  |  |  |  |
| 7. | a. | Explain in detail about boiling point elevation. | CO2 | 10 |
| b. | Describe the application of freezing point depression. | CO3 | 10 |
| (OR) | | | | |
| 8. | a. | Explain in detail about the role of water activity in shelf life of food materials. | CO2 | 10 |
| b. | Describe with a neat sketch the Water Activity Determination by Vapor Pressure Measurement method. | CO3 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Describe in detail about microwave heating and its applications. | CO2 | 10 |
| b. | Explain the effects of temperature ove dielectric properties. | CO3 | 10 |