

**CARMEL COLLEGE OF ARTS, SCIENCE AND COMMERCE, NUVEM – GOA**

**POST GRADUATE DEGREE STUDIES (AFFILIATED TO GOA UNIVERSITY)**

**M.Sc. (II) Food Technology (Semester IV) Examination July 2021**

**FTO 118 LAB IN CEREAL, LEGUME, AND OILSEED PROCESSING TECHNOLOGY**

**Max. Marks: 15**

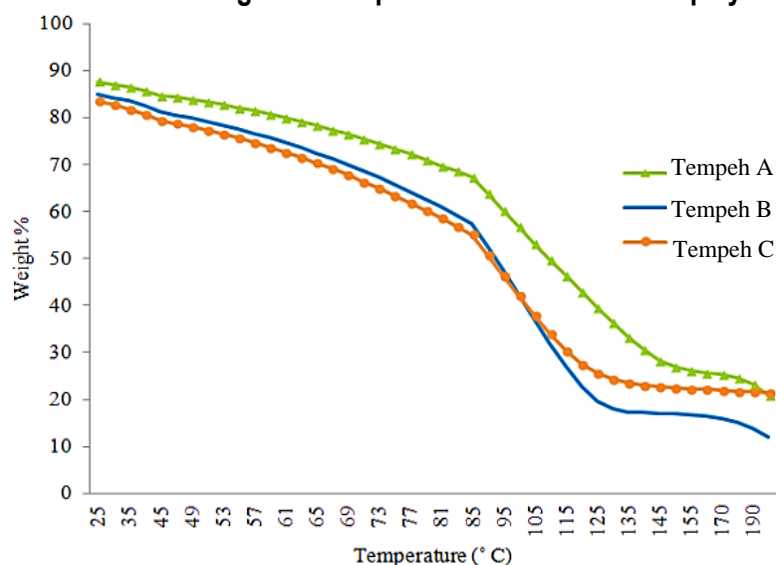
**Duration: 2 hours**

**Date: 19<sup>th</sup> July 2021**

**INSTRUCTIONS:**

1. All questions are compulsory.
2. Figures on the right indicate maximum marks assigned to the question

- Q1. The water molecules interacting with food moiety can be distinguished as chemically-bound, physically-bound, bulk and capillary water. Thermogravimetric analyses (TGA) is used to determine the water composition of foods. Moisture content of three samples of Tempeh (A, B and C) were determined using TGA. Graph obtained has been displayed below: (4 marks)**



- a. Note down your conclusions.
- b. Elaborate on the principle behind TGA and its role in determination of water distribution in food.
- c. Review the data provided, and comment on the water distribution of the three samples.

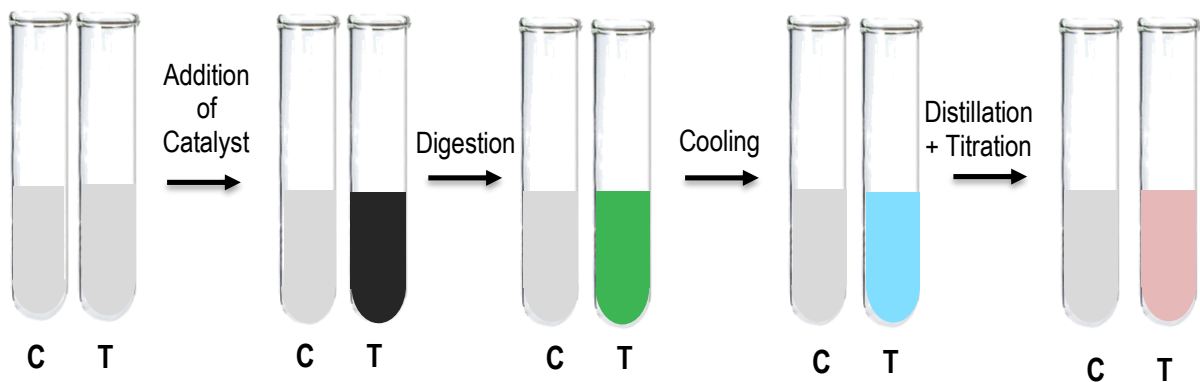
- Q2. Different samples of rice were cooked at a constant temperature and time period. The following observations were recorded:**

- Long grained parboiled rice was firm.
- Shot grain rice was found to be completely pasty and could not hold their shape together when pressed.
- Non-parboiled long grain rice was fluffy, but not sensitive to touch.

**Draw a list of possibilities for the above mentioned statements.**

**(3 marks)**

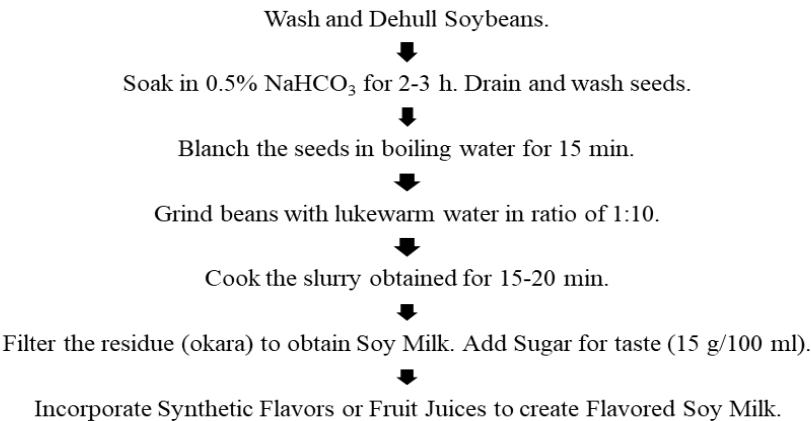
**Q3. The following images correspond to a test conducted on different cereal and pulse samples to estimate their protein content (C- Control, T- Test). (4 marks)**



- Identify the test conducted.
- Elaborate on its principle behind the changes in color.
- Based on the data provided below, estimate the protein content of each sample.

Sample	Estimated Nitrogen Content
<i>Rice Flour</i>	12.3
<i>Whole Grain Wheat Flour</i>	14.1
<i>Soybean</i>	26.7
<i>Peanut</i>	21.0
<i>Oats</i>	18.5
<i>Macaroni</i>	15.5

**Q4. Soybean milk is a popular vegan alternative to animal-based milks, and is extensively researched. The following procedure was used to create flavored soymilk.**



While trying to replicate the procedure with soy flour instead of soybeans, the following were observed.

- A very low amount of soy milk was obtained.
- A high concentration of trypsin was recorded.
- The soy milk was found to have a high bacterial count.
- The end-product was sour, bitter and of uneven consistency.

**Write an appropriate reason for each of the observations. (4 marks)**