Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – WINTER • 2014

Subject Code: 161402 **Date: 28-11-2014**

Subject Name: Food Rheology and Sensory Evaluation

Time: 02:30 pm - 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Secant modulus of the stored food between 2 and 6 months is found to be 15°. Same food further stored for three more months. Now, its secant modulus is found to be 40°. Derive inferences from the above information and explain. **07**

(b) Do as directed. **07**

i) Wooden containers should not be used during sensory evaluation. Justify the statement.
ii) Time of evaluation in sensory evaluation affects the results. Justify the statement.
iii) Define food matrix.
iv) State the significance of moisture content in chocolate mass rheology.
v) Introduce briefly Triangle Test.
vi) Enlist the steps in selection of panel members for descriptive type of test.
vii) Differentiate between taste and flavour.

Q.2 **(a)** Draw a force deformation curve of fresh and one hour stored NAN at room temperature and explain various characteristics of the same. **07**

(b) Discuss the steps to carry out sensory evaluation of food product. **07**

OR

(b) Explain the design layout of sensory evaluation laboratory. **07**

Q.3 **(a)** Develop a relationship of change in strain with time when a constant load is applied on the bio material. **07**

(b) Explain the flow characteristics of sugar 60° brix sugar syrup at 80 ^oC and 30^oC. **04**

(c) Differentiate Newtonian and Non Newtonian fluids. **03**

OR

Q.3 **(a)** In a Maxwell set of operation it was observed that after 90 minutes decay stress and equilibrium stress are 60 and 50% of the stress at that time. Compute the time of relaxation of the specimen. What is its significance? **07**

(b) Explain the calibration process of E nose. **04**

(c) Write a note on human olfactory system and E-nose. **03**

Q.4 **(a)** What are the various methods of color measurement? Discuss any one of them. **07**

(b) Introduce briefly: i) True stress ii) Optical Density **04**

iii) Chord modulus iv) Time of relaxation

(c) Write short notes on the followings. **03**

i) Rheology ii) Beers Law iii) Time of relaxation

OR

Q.4 **(a)** What are the dynamic tests for measuring Rheological properties of the food? In a resonance technique a potato finger 80 mm long and 30 mm in diameter was tested under compression. The recorded resonant frequency obtained was 40 Hz. If the mass density of the sample is 2.53 g/cm^3, calculate the modulus of elasticity of the sample. **07**

(b) With a force deformation curve explain crunchy and soggy biscuit texture. **04**

(c) Differentiate Resilience and Mechanical hysteresis. **03**

Q.5 **(a)** The company developed new flavoured yoghurt. The company wishes to compare their new product with competitor's market product in respect to overall liking. Suggest the most suitable sensory evaluation method and design sensory evaluation card. **07**

(b) Define consumer test. What are guidelines to design consumer questionnaire? **04**

(c) What are basic requirements to become panel member in sensory evaluation? **03**

OR

Q.5 **(a)** Derive casson viscosity equation for molten chocolate mass. **07**

(b) Define threshold value. Briefly explain different types of threshold value. **04**

(c) Differentiate between paired comparison test and duo trio test. **03**

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