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## SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**FOURTH SEMESTER B. TECH DEGREE EXAMINATION (R), MAY 2023**

**FOOD TECHNOLOGY**

**(2020 SCHEME)**

**Course Code : 20FTT204**

**Course Name: Engineering Properties of Food Materials**

**Max. Marks : 100**

**Duration: 3 Hours**

### PART A

*(Answer all questions. Each question carries 3 marks)*

1. Explain roundness and sphericity with the help of equation.
2. Detail the equation of terminal velocity.
3. What is rolling resistance?
4. Differentiate between static friction and kinetic friction.
5. What is boiling point elevation and freezing point depression?
6. Explain the terms 1) Enthalpy 2) Thermal diffusivity.
7. Explain the fundamental properties which describe rheology of materials.
8. Differentiate Hookean body and St Venant body.
9. What are the textural parameters in food products?
10. Differentiate firmness and hardness of food materials.

### PART B

*(Answer one full question from each module, each question carries 14 marks)*

#### MODULE I

11. Explain the different measurement techniques of porosity. (14)

**OR**

12. Explain the different measurement methods for determination of density. (14)

#### MODULE II

13. a) Explain the method of measurement of angle of repose. (7)

b) Derive any one equation for calculating the lateral pressure in designing of storage bins. (7)

**OR**

14. a) Describe the effect of sliding velocity and contact surface temperature on friction. (10)

b) List out the equations of pressure distribution in storage structures and compression chambers. (4)

**MODULE III**

15. Explain four methods for the measurement of thermal conductivity. (14)

**OR**

16. a) What is L\*a\*b color system? (7)  
b) What are the factors influencing the dielectric properties of food materials? How are dielectric properties of food measured? (7)

**MODULE IV**

17. Explain physical states of matter using creep compliance function and relaxation modulus function. (14)

**OR**

18. a) Describe rotational viscometers with the help of neat, relevant schematic diagrams. (7)  
b) Explain the mechanical models used to study the viscoelastic behavior of food. (7)

**MODULE V**

19. a) Describe on texture profile analysis. (7)  
b) Explain any three instruments used for texture analysis. (7)

**OR**

20. a) Describe the dimensional analysis of food texture with examples. (7)  
b) Explain the effect of age, water content and temperature on texture of foods. (7)

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