Code No: R1631354 **R16** SET - 1

III B. Tech I Semester Regular Examinations, October/November - 2018

ENGINEERING PROPERTIES OF BIOLOGICAL MATERIALS AND FOOD QUALITY

(Agricultural Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1. a) Define in one/two sentences: i) Food quality ii) Rheology [2M]
b) Define and discuss the relationship between dynamic and kinetic viscosity with their SI units. [2M]
c) Define the terms porosity, bulk density and true density and describe the relation between the three. [2M]
d) Enlist various textural properties of food materials. [3M]
e) Define in one/two sentences : [3M]
i) Specific heat ii) Latent heat iii) Sensible heat
f) Enlist major dielectric properties importance in agricultural processing. [2M]

PART -B

2. a) Enlist the various engineering properties of biological materials relevant to agricultural processing and food engineering. [7M]
b) Discuss in brief the importance of various engineering properties in agricultural processing. [7M]

3. a) Discuss the classification of fluids based on rheological properties. [7M]
b) Differentiate between kelvin model and Maxwell model. [7M]

4. a) Expand HACCP and discuss its importance in food industries. [7M]
b) Enlist the various principles of HACCP. [7M]

5. a) Enlist various thermal properties of biological materials with SI units. [7M]
b) Discuss the importance of thermal properties in agricultural processing and food engineering. [7M]

6. a) Define terminal velocity and briefly discuss the importance of aerodynamic properties [7M]
b) Derive an expression for terminal velocity for a spherical body. [7M]

7. a) Define angle of repose and describe a method for determining angle of repose. [7M]
b) Expand and explain in brief [7M]
i) CAC ii) TQM iii) ASTM iv)GMP v) ISO

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