

**Roll No.**

**Total No. of Pages : 02**

**Total No. of Questions : 09**

**M.Sc (Food Technology) (2018 Batch) (Sem.-1)**

# PRINCIPLES OF FOOD ENGINEERING

**Subject Code : MSFT-512-18**

**M.Code : 75592**

**Time : 3 Hrs.**

**Max. Marks : 70**

### INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A contains SEVEN questions carrying TWO marks each and students have to attempt ALL questions.**
2. **SECTIONS-B consists of FOUR Subsections : Units-I, II, III & IV. Each Subsection contains TWO questions each carrying FOURTEEN marks each and student has to attempt any ONE question from each Subsection.**

## SECTION-A

- 1. Answer in brief :**

- What are manometers?
- Name of the two examples of non-Newtonian fluids.
- What is relative humidity?
- Define angle of repose.
- What is turbulent flow?
- What do you understand by specific volume of air?
- Define commercial sterility concept.

## SECTION-B

## UNIT-I

2. Write briefly :

- a) Different pressure and velocity measuring devices. (10)
- b) Fluid statics and fluid dynamics (4)
3. Define Bernoulli's equation. Explain the concept of total mass and component mass balance along with example. (14)

## UNIT-II

4. a) What is Fourier's law? Explain the different modes of heat transfer along with example. (8)  
b) Effect of temperature on thermal inactivation of microorganisms. (6)
5. a) What is conduction? Explain the working principle of tubular heat exchanger along with diagram. (7)  
b) Derive the equation for the conductive heat transfer in a tubular pipe. (7)

## UNIT-III

6. Define humidity ratio. Explain the different properties of air vapour mixture. (14)
7. Write short note on psychometric processes :
  - a) Cooling and dehumidification (7)
  - b) Heating and humidification (7)

## UNIT-IV

8. What is material handling? Explain the various types of material handling equipments. (14)
9. Write short note on :
  - a) Advantages of sorting and grading (7)
  - b) Gravity conveyors (7)

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**