B.Sc. FOOD SCIENCE & TECHNOLOGY
THIRD SEMESTER
FOOD PROCESS ENGINEERING
BFST-305
[USE OMR SHEET FOR OBJECTIVE PART]

SET B

Duration: 3 hrs.

Full Marks: 70

(**Objective**)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

$1×20=20$

1. Freezing takes place at a temperature of....................
   a. 4°C
   b. -1 °C
   c. 10°C
   d. -18 °C

2. GTR is measured in..........
   a. cc/m² /24 hour
   b. cc/100
   c. cc/24 hour
   d. Both b and c

3. The hot gas flows through the tubes in ....boiler.
   a. Water tube
   b. Fire tube
   c. Both a and b
   d. None of the above

4. Pasteurization takes place at 63 °C for a time period of..........
   a. 15 sec
   b. 1 sec
   c. 30 min
   d. 30 sec

5. ....has specific ratio higher than 1.20.
   a. Blower
   b. Fan
   c. Compressor
   d. Both a and c

6. During drying, water moves from the interior of the food at the same rate as it evaporates from the surface, the surface remains wet which is known as..................
   a. Falling rate period
   b. Constant rate period
   c. Critical moisture content
   d. Nucleation

7. Kick's law gives reasonably good results for ....grinding of food materials.
   a. Coarse
   b. Fine
   c. Ultrafine
   d. Minute

8. Stability of an emulsion are related by...........law.
   a. Stoke's
   b. Fourier's
   c. Boltzman's
   d. Newton's

9. Rate of heat transfer in food is affected by...............
   a. Agitation of container
   b. Size of the product
   c. Type of the product
   d. All of the above

10. Angle of repose comes under............. properties.
    a. Thermal
    b. Physical
    c. Mechanical
    d. Biological

11. The SI unit of roundness is............
    a. m/s^2 b. Unit less
    c. Kg/ms^2 d. Watt/mK

12. ....is the minimum temperature required to reduce the population of microorganism by one log cycle when subjected to thermal destruction for a specific time period.
    a. *TDT value*   b. *D value*
    c. *Z value*   d. *F value*

13. SI unit of thermal conductivity is.............
    a. $W/m/K$ b. $W/m^2/K$
    c. Kg/ms^2 d. Kg/m^2

14. Evaporator contains............
    a. Steam jet ejector   b. Condenser
    c. Heat transfer system   d. All of the above

15. ....fans consists of blades insides casing with addition of guide vanes that improve efficiency by directing and straightening the flow.
    a. Tube axial   b. Vane axial
    c. Propeller   d. All of the above

16. In acidic food, heat treatment is used to extend the shelf life for several months by destruction of...............
    a. Yeast and mould   b. Bacteria
    c. Virus   d. Spores

17. Agents with low HLB values used for..............emulsions.
    a. W/O   b. O/W
    c. O/W/O   d. All of the above

18. In hammer mill ....force is involved.
    a. Compression   b. Shearing
    c. Tensile   d. Impact

19. ....is the organism used to check efficiency of pasteurization of milk.
    a. *Mycobacterium tuberculosis*   b. *Alkaline phosphatase*
    c. *Bacillus sp.*   d. *Staphylococcus sp.*

20. Mesophillic microorganism can grow at a temperature of............
    a. 0-10°C   b. 20-45°C
    c. 55-80°C   d. More than 80°C

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(**Descriptive**)

Time : 2 hr. 30 mins.   Marks : 50

1. What is the difference between chilling and freezing? Describe the   2+8=10
    refrigeration cycle with diagram.

2. Define the terms: 2×5=10
    a) Roundness
    b) Spherecity
    c) Angle of repose
    d) Porosity
    e) Density

3. What do you mean by grinding? Explain homogenization and   2+4+4=10
    emulsification of foods.

4. Explain the properties of packaging materials of foods.   10

5. What are Steam generators? Explain the different types of steam   2+8=10
    generators with example.

6. Write a short note on: 2×5=10
    a) Pasteurisation
    b) Drying

7. Discuss the difference between fan and blower. Also explain different   2+8=10
    types of fan and blowers.

8. What is size reduction? Discuss the theories of size reduction with   1+9=10
    mathematical expression.

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