

- Q.24 Explain working principle of batch pan type evaporator with diagram.
- Q.25 Define the terms Fick's Law of diffusion and mass transfer.
- Q.26 Write a brief note on Reynolds no.
- Q.27 Describe the working principle of tunnel dryer with a well labeled diagram?
- Q.28 Write a note on general selection consideration of heat exchangers.
- Q.29 Draw a neat and clean diagram of the vacuum dryer and give its working principle.
- Q.30 Write a brief note on psychometric properties.
- Q.31 Describe the working principle of a spray dryer with a well labeled diagram?
- Q.32 Describe the working principle of a fire tube boiler with a well labeled diagram?
- Q.33 Explain the working principle of falling film evaporator.
- Q.34 Define the dryer and give the difference between direct contact and indirect contact dryer.
- Q.35 Explain modes of heat transfer briefly.

#### **SECTION-D**

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Define manometer. Explain a simple different type of manometer and its application.
- Q.37 Define heat exchanger and give classification of heat exchanger according to arrangement of flow.
- Q.38 Write a detailed note on fluid flow characteristics.

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**4th Sem / Food Tech.  
Subject:- Principles of Food Engineering**

Time : 3Hrs.

M.M. : 100

#### **SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 Which of the following is the derived unit?
- Meter
  - Kilogram
  - Second
  - none of the mentioned above
- Q.2 The \_\_\_\_\_ is the heat energy transferred per unit time and per unit surface area, divided by the temperature difference.
- Thermal conductivity
  - Specific Heat
  - Density
  - none of the mentioned above
- Q.3 When the rate of evaporation of water is zero, the relative humidity of the air is:
- 0%
  - 100%
  - 50%
  - 20%
- Q.4 Which of the following is not an example of an evaporator?
- Batch pan
  - Falling Film
  - Both a & b
  - None of the mentioned above

- Q.5 The energy transfer between the hot fluid and cold fluids is brought about by their complete physical mixing in  
 a) Direct contact heat exchanger  
 b) Regenerators  
 c) Recuperators  
 d) Boilers
- Q.6 \_\_\_\_\_ is a mode of heat transfer through solids or stationary fluids?  
 a) Conduction  
 b) Convection  
 c) Radiation  
 d) All of the mentioned above
- Q.7 Manometers are used to measure  
 a) Pressure in water pipe  
 b) Difference in pressure at two points  
 c) Atmospheric Pressure  
 d) Very Low Pressure
- Q.8 Which of the following is a type of fire tube boiler?  
 a) Babcock and Wilcox boiler  
 b) Locomotive boiler  
 c) Both a & b  
 d) None of the mentioned above
- Q.9 Which type of heat exchanger is an automobile radiator?  
 a) Counter flow type    b) Parallel flow type  
 c) Both a & b            d) Cross flow type
- Q.10 In a shell and tube heat exchanger, baffles are provided on the shell side to \_\_\_\_\_  
 a) Prevent the stagnation of shell side fluid

- b) Improve heat transfer  
 c) Provide support for tubes  
 d) All of the mentioned above

### **SECTION-B**

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 The SI unit for the density is \_\_\_\_\_. (kg/m<sup>3</sup> or m<sup>2</sup>/s)
- Q.12 Which one of the following is not a suitable application of evaporators? (Heating/Crystallization)
- Q.13 Give name of any dryers used for milk drying.
- Q.14 Give name of any two rotary positive displacement pumps.
- Q.15 Gasses are far more \_\_\_\_\_ than liquids and solids. (Compressible/Incompressible)
- Q.16 \_\_\_\_\_ is the amount of water vapor in the air. (Humidity/vapor pressure)
- Q.17 Write full name of FBC boiler.
- Q.18 Manometer that comes with a vertical glass tube that is filled with \_\_\_\_\_. (Mercury /Gas)
- Q.19 In \_\_\_\_\_ heat exchangers, the fluids enter the heat exchanger at apposite ends and flow in opposite directions.(counter flow / parallel flow)
- Q.20 Viscosity is not the property of \_\_\_\_\_. (Liquids/ Solids)

### **SECTION-C**

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Define the terms bulk density and viscosity .
- Q.22 Write a note on periodical maintenance of equipment.
- Q.23 Describe the working principle of centrifugal pump with a well labeled diagram?

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