Mugberia Gangadhar Mahavidyalaya

Bhupatinagar, Purba Medinipur, West Bengal

Department of Food Technology and Nutrition

B.Voc- FP 1st Semester, 2020-21

Paper- Basic principles of food processing & preservation (Theory)
[BVFPS101T&P]

Full marks - 30. Time: 2 hour

1. Answer the following questions (any 5) **[2×5=10]**

a) What is Putrefication?
b) What is enzymatic browning?
c) Briefly describe about thermal death time?
d) Elaborate Air blast freezer?
e) What is refrigeration load?
f) How do we express chilling load, freezing load and respiration load?
g) Write short note about immersion freezer?
h) Briefly describe about characteristics of drying in falling rate period?

2. Briefly answer the following questions (any 2): **[5×2=10]**

a) How we measure drying rate in constant rate period?(include wet bulb temperature idea) (5)
b) Derive the equation for survival curve of 1st order reaction. What is D value, F value and Z value. (2.5+2.5)
c) Write short note on various types of tunnel freezer. (5)
d) What is Bound moisture and unbound moisture? How we can determine moisture content in dry and wet basis? (2+3)

3. Answer the following questions (any 1): **[10×1]**

a) What is Mailard reaction? What is Rancidity and how many types of rancidity there? A 50 kg mass of fruit has moisture content of 33% (D.B). Then 1. How much water is present in the food? 2.What will be the moisture content in wet basis.
Draw five types of microbial inactivation curve. (1+2.5+4.5+2)

b) 6 tons of apples having specific heat of 3.77 kJ/kg.K, is to be cooled from 28 to 12 degree centigrade in 24 hours. Heat of respiration per day is 3135 kJ.hr . 4 workers will work for 3 hours and the lightning load will be 100 watt. Air filtration load for the cooler is 4096 kJ/24 hour. The inside dimension of the cold storage are 6*6*3 m^3 , wall thickness is 40 cm. And belt is of 10 cm cork insulation on the inside of 4 walls. The cement plaster is 1 cm thick. Heat transfer co-efficient f the ceiling is 20% more than of the wall. The outside temperature is 30 degree centigrade and inside temp is 5 degree centigrade. Thermal conductivity values of brick, cork and cement plaster is 1.75, 0.15, 0.10 kJ/hr.m.degree centigrade respectively. Heat of respiration for one person is690 kJ/hr. Calculate the plant storage capacity in terms of tons of refrigeration. For respiration load of a single apple values of constant a and b are 19.4 and 0.108 respectively. (10)