Marks: 50
Time: 2 hours
(10x1=10)

I   Define the following

1 Blending
2 Emulsification
3 D Value
4 Z value
5 Food irradiation
6 Viscosity
7 Extrusion
8 Blanching
9 Pasteurization
10 Dehydration

II   Write short notes on ANY FIVE   (5x2=10)

1 Free moisture - bound and unbound moisture - equilibrium moisture content
2 Potato flakes (moisture content = 75% wb) are being dried in a concurrent flow dryer. It was found that 70% of original water has been removed in a dryer. Determine (a) mass of water removed / kg of potato flakes, (b) composition of dries potato.
3 Enlist different material handling equipment
4 Ribbon mixer
5 Propeller
6 Maxwell model
7 Blanching techniques

III   Answer any FIVE of the following.   (5x4=20)

1 Freeze drying technique
2 Osmotic dehydration principle and process
3 Working principle of single screw extruder
4 Ohmic heating
5 Size reduction of foods.
6 The ambient air with a dry bulb temperature of 25°C and wet bulb temperature of 20°C is heated to 60°C and blown into a grain dryer. It is assumed that in the dryer air follows the adiabatic cooling line and leaves the dryer at 45°C. Find the various properties at initial condition of the air. If it is required to remove approximately 20 kg of water per hour, calculate the quantity of air required in kg/h and heat energy required in the air heater.
7 The proximate composition of cow milk shows that it contains 3.85 % fat, 3.48 % protein, 5.08 % lactose (milk sugar) and 0.72 % minerals, thus comprising 13.13 % total soluble solids (TSS). To obtain skim milk, the cow milk is centrifuged to separate 80% of the fat initially present. The skim milk is then evaporated such an extent that its TSS is increased to 30 %. Find out the final composition of evaporated milk.

IV   Answer any ONE of the following   (1x10=10)

1 Canning process unit operations.
2 Scope and importance of food processing.

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