Sardar Patel University

MSc. HSc. II Semester Food & Nutrition (NC) under CBCS

External Theory Examination

New CBCS : PH02EFDN02: Basic Food Processing

Date : 6/12/2012 (Thursday)

Time: 10:30 – 1:30 P.M

Total Marks: 70

I.   Multiple Choice Questions (Select the correct answer)   (8)

1. In a heat exchanger when both fluids flow in the same direction it is called :
    a) counter current fluid flow
    b) cross current fluid flow
    c) co-current fluid flow
    d) none of the above

2. A refrigerant should have :
    a) a large requirement of latent heat
    b) should be non inflammable
    c) should be economical
    d) all of the above

3. In the solar cooker the exterior is painted black in order to :
    a) increase heat absorption
    b) decrease heat absorption
    c) both a & b
    d) none of the above

4. Scraped surface heat exchanger is most useful for cooling
    a) milk
    b) tutti-frutti ice cream
    c) fruit juice
    d) none of the above

5. Fruit Preserve indicates:
    a) pieces of large fruit (eg. Apple) canned in sugar syrup
    b) small fruits (eg. Berries) canned in sugar syrup
    c) pieces of fruit canned in salt solution
    d) both a & b

6. A homogenizer equipment
    a) helps the milk fat globules to come together
    b) breaks the milk fat globules into smaller sized particles.
    c) helps in the cream layer separation from whole milk.
    d) none of the above

7. Bread is an example of:
    a) manufacture of basic food ingredients.
    b) traditional processed food industry

(P.T.O)

c) western food manufactured in india

d) none of the above

8. Milk is converted into very tiny drops for the purpose of drying in a

    a) drum drier

    b) spray drier

    c) both a & b

    d) neither a nor b

II.   Explain briefly (any seven)   (14)

    i)   Reynold's number

    ii)   Individual Quick Blancher

    iii)   Case hardening

    iv)   Fluidized bed heating

    v)   Dielectric loss factor

    vi)   Specific gravity of foods

    vii)   'D' value and 'Z' value

    viii)   Calorie

    ix)   Air blast freezer

III.   Q. A is compulsory. Answer any one question from B.

A)

    i)   Calculate the heat energy required for converting 900 g of ice at 0°C to steam at 100°C. [Cp of water = 1 cal / g / $^{\circ}$C, LH of fusion = 80cal /g of ice and LH of evaporation = 544 cal / g of water].   (4)

    ii)   Around 0.5 kg of carrots at 25°C are to be blanched at 85°C using water at 95°C. Calculate the quantity of water required for this if

        Cp of carrot = 0.92 cal /g / $^{\circ}$C and Cp of water = 1cal / g / $^{\circ}$C   (4)

B)   Explain the following terms:

    latent heat, sensible heat, degree Kelvin, degree Rankin.   (4)

OR

B)   What are conduction, convection and radiation? Explain giving the formula for their calculation.   (4)

IV.   QA is compulsory. Answer any one question from B.

A)   What is refrigeration? Explain with a figure the working of a vapor compression system of refrigeration.   (6)

B)   What are pumps? Name the different types of pumps you have studied. Explain with a figure the working of a centrifugal pump and a peristaltic pump.   (6)

OR

B)   What is electromagnetic radiation? With the help of a figure explain the working of a microwave oven.   (6)

V.

A) What is the meaning of 'commercial' sterilization? With the help of a figure explain the hydrostatic sterilizer. (6)

B) Explain with a figure the working of any **two** of the following:
  i) Spiral tubular heat exchanger
  ii) Fin and tube heat exchanger
  iii) Falling film heat exchanger
  iv) Plate heat exchanger (6)

VI. Write short notes (any four): (12)
  i) Water blanching equipment.
  ii) Fire tube boiler.
  iii) Membrane separation of foods.
  iv) TDP and TDT.
  v) Hydrogenation of edible oils.
  vi) Pasteurization equipment.

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