P.G. DIPLOMA IN FOOD SCIENCE AND TECHNOLOGY (PGDFT)

Term-End Examination

June, 2016

MFT-003 : FOOD PROCESSING AND ENGINEERING

00162

Time : 3 hours   *Maximum Marks : 70*

Note :   (i)   *Attempt five questions in all.*

       (ii)   *Question no. 1 is compulsory.*

       (iii)   *All questions carry equal marks.*

1.   Fill in the blanks :   14x1=14

    (a)   _____ of an object is mass per unit volume.

    (b)   The unit of potential energy is _____.

    (c)   _____ pumps are rotary pumps which are held in submerged condition.

    (d)   _____ moves through space in straight lines.

    (e)   Insects can survive at a Rh as low as _____ %.

    (f)   _____ conveyors are used to convey bulk materials to shorter distances.

    (g)   Problem in dry cleaning method is _____ of the material.

    (h)   Size sorter used for peas are _____.

    (i)   Open circuit operation produce particles within _____ size range.

(j) _____ separate particles at molecular level.

(k) Moisture content increases _____ of seed oil.

(l) In cold extrusion, product is kept at _____ temperature.

(m) _____ treatment is the application of pulses of high voltage to materials.

(n) CIP stands for _____.

2. Differentiate between the following :   7x2=14

(a) Chemical and Physical sanitizing agents.

(b) Ultrafiltration and Nanofiltration.

(c) Single screw extruder and Twin screw extruder.

(d) Dead End and Cross flow filtration.

(e) Belt conveyors and Pneumatic conveyors.

(f) Disc Sorter and Cylinder Sorter.

(g) Dry caustic peeling and Wet caustic peeling.

3. Write short notes on the following :   4x3.5=14

(a) Electrostatic cleaning.

(b) Types of fluids.

(c) Size reduction of fibrous foods.

(d) Limitations of microwave cooking.

4. (a) Define Plant layout.   2

(b) What are the objectives, importance and types of plant layout ?   6

(c) What are various effects of HHP processing on food ?   6

5. (a) Write down the principles for the following processing techniques : **4x2=8**

   (i) Pressure homogenizer

   (ii) Transmittance sorting

   (iii) Depth filtration

   (iv) Microwave heating

   (b) Define Porosity, Coefficient of friction and specific heat. **3x2=6**

6. (a) Discuss first law of thermodynamics. **6**

   (b) How can you determine thermal conductivity by steady state longitudinal heat flow method ? **4**

   (c) If a tank is filled upto 5 m height with honey under a pressure of 90 KPa. What would be the pressure at the bottom of the tank ? **4**

   (Density of honey -1450 kg/m^3)

7. (a) Discuss the method for determination of specific heat of grains. **6**

   (b) Water flows in a 10 cm diameter pipe at a velocity of 10 m/s. Calculate the flow rate and mass flow rate. **3x2=6**

   (c) How is fumigation helpful in controlling insects infestation in food grains ? **2**