53 (FPT 611) FPTC-IV

2012C
2013
(May)

FOOD PRODUCT TECHNOLOGY - IV

Paper : FPT 611

Full Marks : 100

Pass Marks : 30

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions out of seven.*

1. *(a)* Define compressability, Angle of repose, Uniformity coefficient and Dispersability. What is their relation to flowability of ingredients? 8

   (b) Why is ventilation required in fermentation rooms? 2

   (c) Mention the operations of a moulder. Explain in detail . 5

   (d) State the objectives of fermentation and the principal goals for designing proof boxes. 5

2. *(a)* Differentiate the functions of mixers used for doughs and batters. 5

(b) Write a short note on the importance of *any two* milling tests. 3×2=6

(c) State the differences in the functioning of sheeting rolls and dough brakes. 3

(d) Write a short note on automated bulk handling system. 3

(e) What is the necessity of a rounder while making dough pieces ? 3

3. *(a)* Explain the relation between α-amylase, viscosity and falling number with the help of a graph. 4

(b) Explain the principle of Kjeldahl apparatus. 4

(c) Explain in detail the structural changes and role of protein, hydration, CO_2, enzymes and oxidising agents during the formation of dough. 12

4 *(a)* Mention the parameters considered to classify wheat. 2

(b) What are the general technical aspects of sugar confectionary ? Explain in detail. 10

(c) Define mixing and give the advangages of a premixer. 2+6=8

5. Mention the raw materials used in sugar confectionary. Explain *each* in detail. 20

6. (a) Explain the working principle of an extruder with a neat diagram. 4

(b) Differentiate between single and twin screw extruder. 4

(c) List the advantages of an extruder. 4

(d) Give the various applications of an extruder. 5

(e) Differentiate between extrusion cooking and cold extrusion. 3

7. (a) To model the flow behaviour in an extruder, derive an equation giving the relation between volumetric flow rate of feed, viscosity and pressure difference. 10

(b) Oat meal with a moisture content of 20%*(Wb)* is being extruded through a metering zone of an extruder with the following dimensions of the channel :

width 10 *cm*, height 2 *cm*. length 80 *cm*. The wall velocity is estimated to be 0.6 *m/s*. The rheological properties of the extrudate can be estimated by a viscosity of 60,000 *paS* and a density of 1200 kg/m^3. If the pressure drop is maintained at 4000 *KPa*, estimate the volumetric flow rate of extrudate through the die. 10