Total No. of printed pages = 3

FPT-601/FEO-II/6th Sem/2017/M

FOOD ENGINEERING OPERATIONS - II

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

INSTRUCTIONS :

(i) Illustrate your answers with suitable sketches and examples.

(ii) Make suitable assumptions wherever applicable.

(iii) Preferably, write the answers in sequential order.

Answer any five questions :

1. (a) Two hundred kg of wheat at 23% moisture content (wb) is dried to 12% (db) moisture content. Calculate :

(i) The initial moisture content and final weight.

(ii) How much moisture is removed ? 7

[Turn over

(b) If the dry and wet bulb temperature of moist air are 26° and 50° respectively, find the other thermodynamic properties of air from the psychrometric chart. 7

2. Write short notes on :

(i) Dew-point temperature

(ii) Freeze dryer

(iii) Calendria evaporator. 4+5+5=14

3. (a) How do you classify various evaporation equipments ?

(b) What are the various applications of a evaporator in food processing ? 7×2=14

4. Differentiate the following :

(i) Falling film evaporator and rising film evaporator.

(ii) Dry basis moisture content and wet basis moisture content. 7×2=14

5. (a) Describe briefly purposes / objectives of drying.

(b) What is meant by constant rate period and falling rate period ? Why do they occur in drying process ? 4+10=14

6. (a) What are microwaves and what are their frequency ranges ?

(b) Compare the microwave heating with conventional heating process.

(c) What are the benefits of using microwave heating systems in food processing ?
4+7+3=14

7. (a) What do you mean by moisture content ? Discuss the different types of moisture content determination methods.

(b) If moisture content of freshly harvested paddy is 22% wb and it is dried to 16% wb, calculate the loss of moisture in drying.
10+4=14