Total No. of printed pages = 7

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END SEMESTER EXAMINATION - 2021

Semester : 5th- (New)

UBRARL

Subject Code : FPT-502

FOOD ENGINEERING OPERATIONS - I

Full Marks -70

Time - Three hours

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

Instructions :

1. All questions of PART - A are compulsory.

2. Answer any nine questions from PART - B.

PART - A

Marks – 25

Answer the following questions as directed :

1×25=25

- 1. Write two frequency ranges used for microwave heating used in India.
- 2. Which part is called heart of microwave heating?

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- 3. How heat generates in Microwave heating ?
- 4. In twin screw extruder, Screw extruders run at a speed of _____. (Fill in the blank)
- In microwave drying, the quality of the product is better because of uniform heating. (Write true/ false)
- 6. The waveguide in the microwave dryer used to direct the energy internally to transfer energy to the heating chamber. (Write true/false)
- 7. In microwave heating, heat is not applied to the food item. (Write true/false)
- 8. The transformation of product during extrusion is (Irreversible or Reversible) ?
- 9. Which one of the flows not occurs in extrusion cooking?
 - (a) Drag flow (b) Heat flow
 - (c) Pressure flow
- (d) Leakage flow

(Choose the correct option)

24/FPT-502/FEO-I (N)

(2)

(a) Radiation drying

(b) Dielectric drying

(c) Pneumatic drying

(d) Vacuum drying

(Choose the correct option)

- 11. The process of forming crystals from solution is known as _____. (Fill in the blank)
- 12. The solubility and particle size of a solute is given by an equation known as ——. (Fill in the blank)
- Homogenization of milk must have 90% of fat globules smaller than _____ in diameter.
 - (a) 1μ (b) 2 μ

(c) 3μ (d) 4μ

(Choose the correct option)

14. Pasteurization of milk is to be carried out at a minimum temperature of

(a) 135°C (b) 90°C

(c) 71°C (d) 62°C

(Choose the correct option)

24/FPT-502/FEO-I (N) (3)

[Turn over

- 15. Belt conveyors is used for material transportation over long distances. (Write true/false)
- 16. Belt conveyors are used to transport the material not only in straight direction, but also in bend positions. (Write true/false)
- 17. Powder material is used to transport using which instrument?
 - (a) Roller conveyors
 - (b) Pneumatic dryers
 - (c) Belt conveyors
 - (d) Screw conveyors

(Choose the correct option)

- 18. Write two importance of material handling in food processing.
- 19. What are the various lifting gadgets used in food processing?
- 20. The device used for extrusion cooking is termed as
 - (a) Pressure vessel (b) Sterilizer
 - (c) HTST Cooker (d) Extruder
 - (Choose the correct option)

24/FPT-502/FEO-I (N) (4)

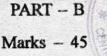
21. An extruder is a —	unit.
(a) Mechanical	(b) Thermodynamic
(c) Pneumatic	(d) Hydraulic
(Choose the correct of	option)
22. Basic components of	an extruder are
(a) Screw, die and ba	rrel
(b) Screw, feed hoop	er and breaker plate
(c) Die, feed hooper	and breaker plate
(d) Barrel, feed hopp	er and other parts
(Choose the correct	option)
23. Ribbon mixers are g solids. (Write true/fa	enerally used for blending lse)
24. Write two applicati systems in food proc	ons of material handling cessing industries.
high energy costs for	vith pneumatic conveying is pumping large quantities of ure. (Write true/false)

24/FPT-502/FEO-I (N)

(5)

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Each question carries 5 marks : 5×9=45

1. Describe a batch crystallizer with neat diagram explaining its application in food processing.

- 2. What do you mean by Extrusion? Why it is more acceptable by consumers?
- 3. What are the benefits of using microwaves heating system in food processing?
- 4. What are microwaves, and what are their frequency ranges ?
- Describe the functioning of the magnetron in micro- wave heating system.
- 6. How Microwaves generate heat in a food material?
- 7. Write the law of conservation of energy?
- 8. What is the importance of material handling in food processing?

24/FPT-502/FEO-I (N) (6)

- 9. Describe a pneumatic conveyor with a neat diagram and its application in food processing.
- 10. Write the effects of extrusion on the nutritional quality of foods.
- 11. Write all the different steps to be followed during energy balances.

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