

M.Voc. 2<sup>nd</sup> Semester Examination, 2022

Department of Nutrition, Mugberia GangadharMahavidyalaya

Programme- Food Technology, Nutrition and Management

Paper: Advances in food processing –I (FTNM21)  
Theory

Full Marks: 30

Time: 2hours

*The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five questions.

2x5

- What is brewing process?
- What is milk imitation?
- Write down microorganism names which are responsible for sauerkraut processing.
- What is concentration factor?
- Write down four names of extruded product?
- What is ripening?
- Arrange the membrane as per increasing pore size - NF, RF, UF, MF
- Mention the reason for fouling in membrane?

2. Answer any two questions.

5X2

- What are the components of a membrane system?
- What is desert wine? Why ageing process is important in wine making process?
- Write short notes on 'chemical used in ripening'.
- Write name of five membrane materials.

3. Answer any one question.

10X1

- What is fermentation? Write down flow diagram for wine making process. Write short note on formulated food. 2+4+4
- Write down four advantages of extrusion cooking. What is harvesting indices? What is lautering process in brewing industry? What types of emulsifier are used in formulated food? 2+2+4+2

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Department of Nutrition, Mugberia GangadharMahavidyalaya

Programme- Food Technology, Nutrition and Management

Paper: Advances in food processing –II (FTNM22)  
Theory

Full Marks: 30

Time: 2hours

*The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five questions.

2x5

- Write the differences between conventional and microwave heating.
- What do you mean by the term “homeostasis”?
- Write the factors on which penetration of IR in food materials depend.
- Why liquid nitrogen is used as cryogen in cryogenic grinding?
- How pulsed electric field treatment can be used for extending the shelf life of foods?
- Write any two application of nanotechnology in food processing.
- Write any two advantages of high pressure processing.
- What are the common ingredients used for extruded snacks?

2. Answer any two questions.

5X2

- Define hurdle technology. Give examples of any two hurdles used to preserve food. (2+1.5+1.5)
- Explain the mechanism of microbial inactivation by pulsed light technology.
- Classify three levels of food irradiation with suitable applications in foods and allied domains.
- Comment on infrared radiation and its applications in food processing.

3. Answer any one question.

10X1

- Define super critical fluid with the help of phase diagram. Why CO<sub>2</sub> is used as super critical fluid? (6+4)
- Describe the mechanism of high pressure processing (HPP) in extending the shelf life of food and the types of HPP equipments used in this regard. 7+3

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Department of Nutrition, Mugberia Gangadhar Mahavidyalaya

Programme- Food Technology, Nutrition and Management

Paper: Advances in food packaging (FTNM23)  
Theory

Full Marks: 40

Time: 2 hours

*The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five questions.

2x5

- a) What is antimicrobial packaging?
- b) Differentiate between MAP and CAP.
- c) Write two differences between stretch and shrink packaging.
- d) What type of packaging materials are used for ice cream?
- e) Write two functions of food packaging.
- f) What is vacuum packaging?
- g) Why labeling is necessary in food packages?
- h) What is permeability?

2. Answer any four questions.

5X4

- a) Name some toxic materials which migrate from packaging materials to food. Describe about coding and labeling used in food packaging. (1+2+2)
- b) What is edible packaging? Give example 3+2
- c) Briefly describe about FASSI laws and regulations in food packaging.
- d) Write down techniques of recycling of packaging materials.
- e) Write short note on intelligent packaging.
- f) Write down the factors which affect the package product qualities.

3. Answer any one question.

10X1

- a) What is time temperature indicator? What types of time temperature indicator used in food industry? Write down application of TTI in food processing industry. 2+6+4
- b) Write down advantages of retort pouch. Write down application of TTI in food packaging. 5+5

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Department of Nutrition, MugberiaGangadharMahavidyalaya

Programme- Food Technology, Nutrition and Management

Paper: Food quality management systems (FTNM24)

Theory

Full Marks: 40

Time: 2hours

*The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.*

**1. Answer any five questions.**

**2x5**

- a. What is IPPC?
- b. What are the anti-nutritional factors present in soybean and cotton seed oil?
- c. What is ISO 22000?
- d. What do you understand by the term 'zero calorie' and 'low calorie'?
- e. What is Kaizen?
- f. Define shelf life of food product.
- g. What is the difference between food contaminants and food adulterants?
- h. What do you know about GAP?

**2. Answer any four questions.**

**5X4**

- a. What is recall? Describe the process for conducting a recall plan. (2+3)
- b. What are good hygienic practices that are being followed in food industry?
- c. Discuss briefly about the various belts of six sigma system.
- d. What are the devices used for food traceability? Briefly discuss some advantages and disadvantages of them.
- e. Write short note on AGMARK.
- f. Write short notes on (2.5+2.5)
  - I. TQM
  - II. WTO

**3. Answer any one question.**

**10X1**

- a. Briefly discuss the 5s Kaizen system.
- b. What are the different methods for determination of shelf life of food products?

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Department of Nutrition, Mugberia Gangadhar Mahavidyalaya

Programme- Food Technology, Nutrition and Management

Paper: Mechanical operation and chemical engineering fundamentals (FTNM25)  
Theory

Full Marks: 30

Time: 2 hours

*The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.*

**1. Answer any five questions.****2x5**

- Write the law of conservation of mass in fluid.
- What do you mean by psychorheology?
- Discuss any two factors that affect the rate of filtration.
- Explain the properties of springiness and gumminess of solid food.
- Write down any two advantages of homogenization.
- What are the disadvantages of pressure filter?

**2. Answer any two questions.****5X2**

- A 15 cm long cylindrical metal rod slides inside a tube filled with oil. The inner diameter of the tube is 5 cm and the clearance is 0.05mm. The mass of the bar is 0.5kg when immersed in the oil. What is the viscosity of the oil if the steady-state velocity of the rod is 0.1 m/s?
- Explain Newtonian and non Newtonian fluid according to Newton's law of viscosity.
- Describe briefly about rotary drum filter.
- Explain Kick's law.

**3. Answer any one question.****10X1**

- Write down the differences between
  - sedimentation and filtration
  - sedimentation and centrifugation

**(5+5)**

- In an air pipeline, the flow has the following conditions in section 1: 25 °C, 1.8 bar, 15 m/s velocity and 50 mm inside diameter of pipe. In section 2 the conditions are: 25 °C, 1.3 bar, and 75 mm inside diameter of pipe. Calculate the mass flow rate of air, and the velocity at section 2. At 25 °C and 1.8 bar pressure, air has a density of 2.1 kg/m<sup>3</sup>.

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**Department of Nutrition, Mugberia Gangadhar Mahavidyalaya**

**Programme- Food Technology, Nutrition and Management**

**Paper: Food plant layout and management (FTNM26)**

**Theory**

**Full Marks: 20**

**Time: 1hour**

*The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.*

**1. Answer any five questions.**

**2x5**

- a. Write any four objectives of plant layout.
- b. How availability of utilities affects a location during plant layout.
- c. Write the definition of plant layout according to Richard Muther.
- d. Name the types of floors in food plants.
- e. Write two disadvantages of product layout.
- f. What are the methods applied while designing a food plant to reduce chances of contamination?
- g. What are the objectives of painting?
- h. What are the risks involved in a food plant design process?

**2. Answer any two questions.**

**5X2**

- a. Write factors contributing to the necessity for layout changes.
- b. Explain feasibility study in terms of plant design.
- c. Compare between product and process layout.
- d. Explain the importance of ventilation in food plant. Write down the names of construction materials used for different types of foundations, XXXXXXXXXX, door and windows.  
(2+3)

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Department of Nutrition, Mugberia GangadharMahavidyalaya

Programme- Food Technology, Nutrition and Management

Paper: Research methodology and statistics (FTNM27)

Theory

Full Marks: 20

Time: 1hour

*The figures in the margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any five questions.

2x5

- a) What is replication in statistics?
- b) What is experimental research?
- c) What do you mean by pharmacokinetic.
- d) Explain the term ANOVA.
- e) What is therapeutic index?
- f) What is LD50?
- g) What are the objectives of research?
- h) What is the difference between a thesis and a hypothesis?

2. Answer any two questions.

5X2

- a) What is bioassay? Discuss the various types of bioassay. 2+3
- b) What do you mean by clinical trials? Discuss the various phase of clinical trials. 2+3
- c) What is the difference between law and ethics? What are the ethics in research? 2+3
- d) What are the basic principles of experimental design? 5