Total No. of Questions: 24

Enrollment No : _____

MEDICAPS UNIVERSITY

Faculty of Agriculture

End Semester Examination May 2025

AG3CO52 Principles of Food Science & Nutrition

Programme	:	B. Sc. (Hons.)	**Branch/Specialisation**	:	AG
Duration	:	3 hours	**Maximum Marks**	:	50

Note: *All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.*

Section 1 (Answer all question(s))

Marks CO BL

Q1. Which of the following is an example of a colloidal system in food? **1 1 1**

- ○ Sugar dissolved in water
- ○ Oil and vinegar mixture
- ◉ Milk
- ○ Boiled rice

Q2. Which measurement method is most suitable for determining the density of a liquid food sample? **1 1 1**

- ○ Measuring its temperature
- ◉ Measuring its weight and volume
- ○ Checking its pH level
- ○ Observing its color

Q3. Which macronutrient is the primary source of energy in the human diet? **1 2 1**

- ○ Vitamins
- ◉ Carbohydrates
- ○ Minerals
- ○ Water

Q4. Which nutrient helps in building and repairing body tissues? **1 1 1**

- ○ Carbohydrates
- ◉ Proteins
- ○ Fats
- ○ Vitamins

Q5. Which microorganism is primarily used in bread fermentation? **1 3 1**

- ○ Moulds
- ◉ Yeast
- ○ Bacteria
- ○ Viruses

Q6. Which microorganism is responsible for food spoilage by producing toxins? **1 3 1**

- ○ Yeast
- ○ Bacteria
- ◉ Moulds
- ○ Viruses

Q7. Which preservation method is commonly used to store milk for a longer period? **1 4 1**

- ○ Freezing
- ◉ Pasteurization
- ○ Salting
- ○ Fermentation

Q8. What is the purpose of pasteurization in food processing? **1 4 1**

- ○ Improve taste
- ◉ Increase shelf life by killing harmful bacteria
- ○ Enhance color of food
- ○ Reduce fat content

Q9. Which of the following macronutrients provides the highest amount of energy per gram? **1 5 1**

- ○ Proteins
- ○ Carbohydrates
- ◉ Fats
- ○ Vitamins

Q10. Which type of diet is best for a person with high cholesterol? **1 5 1**

- ○ High-fat diet
- ○ Low-carbohydrate diet
- ◉ High-fiber and low-fat diet
- ○ High-protein diet

Section 2 (Answer all question(s))

Marks CO BL

Q11. Define surface tension. **1 1 1**

Rubric	Marks
What is surface tension	0.5
using suitable example?	0.5

Q12. Explain the term osmosis with an example. **2 1 1**

Q13. (a) Explain scientific measurements. How do scientific measurements like density and pH impact food quality? **5 1 1**

Rubric	Marks
Explain scientific measurements.	2.5
How do scientific measurements like density and pH impact food quality?	2.5

(OR)

(b) Explain phase changes in food science with real-life applications.

Rubric	Marks
Explain phase changes in food science	2.5
with real-life applications?	2.5

Section 3 (Answer all question(s))

Marks CO BL

Q14. Define water-soluble vitamins and name any two water-soluble vitamins. **1 2 1**

Rubric	Marks
Define water-soluble vitamins	0.5
Name any two water-soluble vitamins?	0.5

Q15. What are the sources and main functions of carbohydrates? **3 2 1**

Rubric	Marks
What are the sources	1.5
and main function of carbohydrates?	1.5

Q16. (a) Explain bioactive compounds and its importance. **4 2 1**

Rubric	Marks
Explain bioactive compounds	2
and its importance?	2

(OR)

(b) Describe the term 'Vitamin'. How do vitamins and minerals contribute to overall health?

Rubric	Marks
Describe the term 'Vitamin'	2
and how do vitamins and minerals contribute to overall health?	2

Section 4 (Answer all question(s))

Marks CO BL

Q17. What is food spoilage? State its prevention methods. **2 3 1**

Q18. (a) Explain how microorganisms cause food spoilage. How it can be prevented? **6 3 1**

Rubric	Marks
Explain how microorganisms cause food spoilage	3
and how it can be prevented?	3

(OR)

(b) Discuss the role of fermentation in food production and its benefits.

Rubric	Marks
Discuss the role of fermentation in food production	4
and its benefits?	2

Section 5 (Answer all question(s))

Marks CO BL

Q19. What is pasteurization? State its different types. **2 4 1**

Rubric	Marks
What is pasteurization	1
and its types?	1

Q20. Define preservation. State different methods used for milk preservation. **2 4 1**

Rubric	Marks
Define preservation	1
and method used for milk?	1

Q21. (a) Differentiate between freezing and drying as food preservation techniques. **4 4 1**

Rubric	Marks
Differentiate between freezing	2
and food preservation techniques?	2

(OR)

(b) Explain the role and uses of chemical preservatives in food processing.

Rubric	Marks
Explain the role	2
and uses of chemical preservatives in food processing?	2

Section 6 (Answer any 2 question(s))

Marks CO BL

Q22. Compare and contrast the energy metabolism of carbohydrates, fats, and proteins. **4 5 2**

Rubric	Marks
Compare the energy metabolism of carbohydrates, fats, and proteins.	2
Contrast the energy metabolism of carbohydrates, fats, and proteins?	2

Q23. Explain the importance of balanced and modified diets in preventing diseases. **4 5 2**

Rubric	Marks
Explain the importance of balanced diets in preventing diseases?	2
Explain the importance of modified diets in preventing diseases?	2

Q24. How new trends in food science and nutrition are shaping the future of health and wellness? **4 5 2**

Rubric	Marks
new trends in food science	1
The new trends in food science and nutrition shaping the future of health and wellness?	3

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