

CUET PG Dairy Technology 21st March 2024 Shift 2

Time Allowed :1 Hour 45 Minutes

Maximum Marks :300

Total Questions :75

General Instructions

Read the following instructions very carefully and strictly follow them:

1. This question paper comprises **75** questions. All questions are compulsory.
2. Each question carries **04 (four)** marks.
3. For each correct response, the candidate will get **04 (four)** marks.
4. For each incorrect response, **01 (one)** mark will be deducted from the total score.
5. **Un-answered/un-attempted responses** will be given **no marks**.
6. To answer a question, the candidate needs to choose **one option as the correct option**.
7. However, after the process of **Challenges of the Answer Key**, in case there are multiple correct options or a change in the key, only those candidates who have attempted it correctly as per the **revised Final Answer Key** will be awarded marks.
8. In case a question is **dropped due to some technical error**, full marks shall be given to all the candidates irrespective of whether they have attempted it or not.

Question 1.

Match List-I with List-II:

List-I (Defects in Ice Cream)	List-II (Cause for Defects)
(A) Bitter	I. Due to use of excessive or poor-quality flavouring material
(B) High flavour	II. Using low-quality ingredients, especially flavour dairy products etc
(C) Acidic	III. Using synthetic or imitation flavours in excessive quantity
(D) Unnatural	(IV). Due to use of sour dairy products.

Options:

1. (A)-(1), (B)-(II), (C)-(III), (D)-(IV)
2. (A)-(1), (B)-(I), (C)-(III), (D)-(I)
3. (A)-(1), (B)-(II), (C)-(IV), (D)-(III)
4. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Correct Answer: 3. (A)-(1), (B)-(II), (C)-(IV), (D)-(III)

Solution:

Ice cream defects arise due to issues in the selection of ingredients or improper processing methods. A bitter taste can result from excessive or low-quality flavoring agents. High flavors stem from poor-quality ingredients such as substandard dairy or flavoring products. An acidic defect is typically caused by sour dairy products, indicating spoilage. Unnatural flavors are linked to the use of synthetic or imitation flavoring substances. Identifying these causes helps in maintaining product quality and consumer satisfaction.

Quick Tip

Understand common ice cream defects and their causes for improved quality control in production.

Question 2.

What is the best pH range for the growth of most bacteria in milk and milk products?

Options:

1. 5 to 6
2. 6.0 to 7.7
3. 8 to 9
4. 3 to 5

Correct Answer: 2. 6.0 to 7.7

Solution:

Most bacteria grow optimally in a neutral to slightly acidic environment. The pH range of 6.0 to 7.7 is ideal for bacterial growth in milk and milk products. This range corresponds to the natural pH of fresh milk, making it conducive to microbial activity. Beyond this range, either an acidic or alkaline environment inhibits bacterial growth. Monitoring pH levels in dairy products ensures their safety and helps in preventing spoilage.

Quick Tip

Regular pH monitoring of milk products helps maintain their quality and safety standards.

Question 3.

How will you detect the presence of hydrogen peroxide in milk?

Options:

1. When adulterated milk is treated with ferric chloride solution and concentrated sulfuric acid, violet color develops at the junction of two layers.

2. When adulterated milk is treated with para-phenylenediamine hydrochloric acid, it gives dark blue color.
3. When adulterated milk is treated with HCl and resorcinol powder and boiled in a water bath, it gives red color.
4. By measuring lactometer reading.

Correct Answer: 2. When adulterated milk is treated with para-phenylenediamine hydrochloric acid, it gives dark blue color.

Solution:

Hydrogen peroxide is often added to milk as a preservative or to mask spoilage. Its presence can be detected by adding para-phenylenediamine hydrochloric acid to milk. This reaction produces a distinct dark blue color, confirming the presence of hydrogen peroxide. The test is simple and reliable, making it widely used in detecting adulterants in milk.

Quick Tip

Avoid the use of milk preservatives like hydrogen peroxide due to health concerns and legal restrictions.

Question 4.

How will you detect the presence of formaldehyde in milk?

Options:

1. When adulterated milk is treated with HCl and resorcinol powder and boiled in water, it gives red color.
2. When adulterated milk is heated, cooled, and added with 1% iodine solution, it becomes blue.
3. When adulterated milk is treated with para-phenylenediamine hydrochloric acid, it gives dark blue color.
4. When adulterated milk is treated with ferric chloride solution and concentrated sulfuric acid, violet color develops at the junction of two layers.

Correct Answer: 4. When adulterated milk is treated with ferric chloride solution and concentrated sulfuric acid, violet color develops at the junction of two layers.

Solution:

Formaldehyde is an illegal preservative added to milk to increase its shelf life. To detect it, ferric chloride solution and concentrated sulfuric acid are added to the milk sample. The appearance of a violet color at the junction of two layers confirms the presence of formaldehyde. This test is crucial for identifying unsafe milk and preventing its consumption.

Quick Tip

Learn legal standards for milk safety and avoid using formaldehyde as a preservative.

Question 5.

Late blowing (bulging of cans) defect in canned foods is caused by—

Options:

1. Clostridium foetidum
2. Coliform
3. Bacillus cereus
4. Bacillus subtilis

Correct Answer: 1. Clostridium foetidum

Solution:

Late blowing in canned foods is caused by Clostridium foetidum, an anaerobic spore-forming bacterium. This microorganism produces gas during its metabolic activity, leading to bulging of the cans. Such defects not only spoil the food but can also pose serious health risks if consumed. Proper sterilization and hygiene during canning are essential to prevent this issue.

Quick Tip
Ensure sterilization protocols during canning to eliminate spore-forming bacteria.

Question 6.

Cheese cancer of Swiss and similar cheeses is caused by—

Options:

1. Oospora caseovorans
2. Oospora aurantiacum
3. Oospora crustacea
4. Oospora caseovorans and Oospora aurantiacum

Correct Answer: 3. Oospora crustacea

Solution:

Cheese cancer, a defect in Swiss and similar cheeses, is caused by Oospora crustacea. This microorganism affects the internal texture of cheese, leading to structural breakdown and unappealing quality. Proper fermentation and control of microbial activity during cheese production are crucial to avoid this defect.

Quick Tip
Study the microorganisms responsible for cheese defects for dairy product quality assurance.

Question 7.

Ester-like flavors in butter are caused due to the action of—

Options:

1. *Pseudomonas mephitica*
2. *Pseudomonas fragi*
3. *Aeromonas hydrophila*
4. *Pseudomonas synxantha*

Correct Answer: 2. *Pseudomonas fragi*

Solution:

Ester-like flavors in butter result from the metabolic activities of *Pseudomonas fragi*. This bacterium produces ester compounds during its growth, imparting a fruity or ester-like flavor to butter. Proper storage and hygiene during butter production can help prevent this defect and maintain product quality.

Quick Tip

Understand the role of bacteria in altering the flavor profile of dairy products.

Question 8.

A yellow color in the creamy layer of milk may be caused by—

Options:

1. *Serratia marcescens*
2. *Aeromonas hydrophila*
3. *Pseudomonas syncyanea*
4. *Pseudomonas synxantha*

Correct Answer: 4. *Pseudomonas synxantha*

Solution:

Yellow pigmentation in the creamy layer of milk is caused by *Pseudomonas synxantha*. This bacterium produces pigments during its growth, leading to discoloration. Such microbial contamination can affect the sensory quality of milk and indicates poor hygiene during processing or storage.

Quick Tip

Review microbial pigmentation effects in food safety studies.

Question 9.

Following steps are involved in the preparation of:

- A. Reception of buffalo milk
- B. Pre-heating and filtration (35–40°C)
- C. Standardization (5.5 to 6% fat and 9% SNF)
- D. Open pan condensing till obtaining pindi type khoa
- E. Heat pindi khoa
- F. Addition of sugar (@30% of khoa or 6% of milk)
- G. Kneading of sugar with a wooden kneader (60°C)

Options:

- 1. Peda
- 2. Burfi
- 3. Gulab Jamun
- 4. Rabari

Correct Answer: 1. Peda

Solution:

The steps described align with the preparation of peda, a traditional Indian sweet made from khoa and sugar. The khoa is first condensed, mixed with sugar, and then kneaded to form the desired texture. Each step is critical to ensure the peda's quality and authentic flavor.

Quick Tip

Learn the process of peda preparation as part of dairy product processing.

Question 10.

Excess fermentation of butter or addition of old butter to fermented cream leads to flavor defect in ghee.

Options:

- 1. Acidic
- 2. Curdy
- 3. Rancid
- 4. Smoky

Correct Answer: 2. Curdy

Solution:

A curdy flavor defect in ghee results from excessive fermentation of butter or the addition of old butter to the fermented cream. This defect alters the sensory qualities of ghee, making it unpalatable. Proper handling and freshness of ingredients during ghee production are essential to avoid this issue.

Quick Tip

Understand flavor defects in ghee to improve quality control practices.

Question 11.

Hallikar is a breed of:

Options:

1. Cattle
2. Goat
3. Sheep
4. Pig

Correct Answer: 1. Cattle

Solution:

Hallikar is a famous breed of cattle primarily found in the Indian state of Karnataka. Known for its endurance and strength, it is often used for agricultural purposes such as plowing and carting. The breed is characterized by its sturdy build, high disease resistance, and adaptability to local climatic conditions. Its milk production capability is moderate compared to other breeds but valued for its quality.

Quick Tip

Hallikar cattle play a significant role in sustainable agriculture and local farming practices in Karnataka.

Question 12.

Match List-I with List-II:

List-I (Species)	List-II (Lipid content)
(A) Buffalo	(I) 6.0
(B) Cow	(II) 3.9
(C) Holstein	(III) 3.5
(D) Guernsey	(IV) 4.9

Options:

1. (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
2. (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
3. (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
4. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Correct Answer: 1. (A)-(I), (B)-(III), (C)-(II), (D)-(IV)

Solution:

The lipid content varies among milk from different species. Buffalo milk has the highest lipid content at 6.0%, making it rich and creamy. Cow milk typically contains 3.9% lipids, while

Holstein milk is slightly lower at 3.5%. Guernsey milk stands out with a 4.9% lipid content, prized for its golden color due to higher beta-carotene levels.

Quick Tip

Know the nutritional differences among milk species for product formulation and dietary recommendations.

Question 13.

The fishy flavor defect in evaporated milk is caused by:

Options:

1. Lactococcus lactis ssp. lactis var. maltigenes
2. Candida lactis
3. Proteus ichthyosmuis
4. Aspergillus flavus

Correct Answer: 3. Proteus ichthyosmuis

Solution:

The fishy flavor defect in evaporated milk is caused by the bacterium Proteus ichthyosmuis. This organism produces trimethylamine, a compound responsible for the fishy odor. Such contamination can occur due to improper sterilization or storage conditions. Preventing this defect involves strict hygiene and temperature control during production.

Quick Tip

Maintain strict hygiene and processing standards to avoid microbial contamination in milk products.

Question 14.

Given below two statements, one is labelled as Assertion(A) and other one labelled as Reason(R).

Assertion (A): The HACCP increases food safety and quality standards.

Reason (R): HACCP organizes your process to produce safe food.

In the light of the above statements, choose the correct answer from the options given below.

Options:

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true.

Correct Answer: 1. Both (A) and (R) are true and (R) is the correct explanation of (A).

Solution:

The Hazard Analysis and Critical Control Points (HACCP) system is a structured approach to identify, evaluate, and control food safety hazards. By organizing the production process, HACCP ensures the prevention of potential hazards, enhancing both safety and quality standards. This proactive system minimizes risks associated with contamination and improves consumer confidence in food products.

Quick Tip

Implement HACCP principles in food industries to ensure compliance with global safety standards.

Question 15.

Arrange the following steps in the way they are involved in aseptic packaging:

- (A) Filling and sealing system
- (B) Sterilization of the packaging and the filling environment
- (C) Material for aseptic packaging

Options:

- 1. (A), (B), (C)
- 2. (A), (C), (B)
- 3. (C), (A), (B)
- 4. (C), (B), (A)

Correct Answer: 4. (C), (B), (A)

Solution:

Aseptic packaging involves a series of well-defined steps to ensure sterility and product safety. The first step is selecting the material for aseptic packaging (C). The next step involves sterilizing the packaging and the filling environment (B) to eliminate microbial contamination. Finally, the filling and sealing system (A) is used to package the product in a sterile environment, maintaining its shelf stability.

Quick Tip

Master the steps of aseptic packaging for effective long-term storage of perishable goods.

Question 16.

In human milk, the major factor concerned for germicidal action is:

Options:

- 1. Lysozyme
- 2. Leucocytes
- 3. Complement

4. Bifidus factor

Correct Answer: 4. Bifidus factor

Solution:

The bifidus factor in human milk promotes the growth of *Lactobacillus bifidus*, a beneficial gut bacterium that helps in maintaining intestinal health and protecting infants against harmful pathogens. This factor enhances the germicidal properties of human milk by creating an acidic environment unfavorable for pathogenic bacteria. It plays a critical role in building an infant's immunity.

Quick Tip

Human milk is naturally fortified with components that boost an infant's immunity, including bifidus factor and lysozymes.

Question 17.

In which product is the symbiotic action of bacterial cultures observed?

Options:

1. Yoghurt
2. Curd
3. Yakult
4. Acidophilus milk

Correct Answer: 1. Yoghurt

Solution:

Yoghurt involves the symbiotic action of *Streptococcus thermophilus* and *Lactobacillus delbrueckii* subsp. *bulgaricus*. These bacteria work together, with one creating an environment favorable for the other, leading to efficient fermentation of milk. This process results in the formation of yoghurt with its characteristic flavor, texture, and probiotic benefits, aiding in digestion and gut health.

Quick Tip

Understand the role of symbiotic cultures to enhance the nutritional and probiotic properties of fermented dairy products.

Question 18.

..... is responsible for milk fever.

Options:

1. Hypoglycemia

2. Hypocalcemia
3. Viral infection
4. Hypomagnesemia

Correct Answer: 2. Hypocalcemia

Solution:

Milk fever, a metabolic disorder in dairy cows, occurs due to hypocalcemia—a severe drop in blood calcium levels. This condition often arises shortly after calving due to the high demand for calcium in milk production. Symptoms include muscle weakness, lack of coordination, and, in severe cases, coma. Prompt calcium supplementation can resolve the condition.

Quick Tip

Monitor calcium levels in high-producing dairy cows to prevent milk fever, especially around calving.

Question 19.

Pasteurization ensures:

- (A) Least damage to the cream line
- (B) Complete destruction of spoilage-causing microbes
- (C) Negative phosphatase test
- (D) Complete destruction of pathogens

Options:

1. (A), (C), and (D) only
2. (A) and (C) only
3. (B) only
4. (A), (B), and (C) only

Correct Answer: 1. (A), (C), and (D) only

Solution:

Pasteurization is a heat treatment process designed to eliminate pathogens in milk, ensuring food safety. It achieves a negative phosphatase test, indicating effective pasteurization. While it ensures minimal damage to the cream line, it does not guarantee the complete destruction of spoilage-causing microbes, as these may require higher temperatures or other methods. Pasteurization is crucial for maintaining both the safety and quality of milk products.

Quick Tip

Regular testing and adherence to pasteurization protocols are essential for producing safe and high-quality milk.

Question 20.

The advantages of Low Temperature Long Time (LTLT) pasteurization are:

- (A) Less initial investment
- (B) It is a slow process
- (C) Easy to clean and maintain
- (D) Large volume of milk may be processed continuously

Options:

- 1. (A), (B), and (D) only
- 2. (A), (B), and (C) only
- 3. (A), (B), (C), and (D)
- 4. (A) and (C) only

Correct Answer: 4. (A) and (C) only

Solution:

LTLT pasteurization is an affordable method because it requires less initial investment compared to high-temperature alternatives. Additionally, the equipment is simple to clean and maintain, making it user-friendly for small-scale operations. However, it is a slow process and not designed for handling large volumes of milk continuously, limiting its applicability in large-scale production.

Quick Tip
LTLT pasteurization is suitable for small-scale setups and prioritizes equipment simplicity over speed and volume.

Question 21.

The advantages of High Temperature Short Time (HTST) pasteurization are:

- (A) Milk packaging can start as soon as pasteurization begins
- (B) The capacity can be increased easily by increasing the number of plates
- (C) Less chance of accumulation of milk stone in the vat
- (D) Large volume of milk may be processed continuously

Options:

- 1. (A), (B), and (C) only
- 2. (A), (B), (C), and (D)
- 3. (A), (B), and (D) only
- 4. (B) and (D) only

Correct Answer: 3. (A), (B), and (D) only

Solution:

HTST pasteurization is an efficient and widely used method for processing milk. It allows immediate packaging of milk after pasteurization (A). The modular design enables easy capacity upgrades by adding plates to the heat exchanger (B). Furthermore, it facilitates continuous

processing of large volumes of milk (D), making it ideal for large-scale operations. However, it does not entirely eliminate milk stone accumulation in the vat.

Quick Tip

HTST pasteurization is preferred for its efficiency and ability to handle large-scale production demands.

Question 22.

Assertion (A): After pasteurization, the amount of inorganic phosphate increases.

Reason (R): Phospholipids and some dissolved esters split.

Options:

1. Both (A) and (R) are correct and (R) is the correct explanation of (A)
2. Both (A) and (R) are correct but (R) is NOT the correct explanation of (A)
3. (A) is correct but (R) is not correct
4. (A) is not correct but (R) is correct

Correct Answer: 1. Both (A) and (R) are correct and (R) is the correct explanation of (A)

Solution:

During pasteurization, the breakdown of phospholipids and dissolved esters increases the amount of inorganic phosphate in milk. This occurs due to heat treatment that alters the chemical structure of these compounds. The reason (R) directly explains the assertion (A), as it provides the mechanism behind the observed increase in inorganic phosphate levels.

Quick Tip

Understand the chemical changes during pasteurization to ensure better control over product quality.

Question 23.

The recommended pressure range for homogenization of milk is:

Options:

1. 100-120 Kg/cm²
2. 125-135 Kg/cm²
3. 140-175 Kg/cm²
4. 175-200 Kg/cm²

Correct Answer: 3. 140-175 Kg/cm²

Solution:

Homogenization is performed to reduce the size of fat globules in milk, ensuring uniform

distribution and preventing cream separation. The recommended pressure range of 140-175 Kg/cm² effectively achieves this without causing damage to milk proteins. Proper homogenization improves milk's texture, stability, and shelf life.

Quick Tip

Monitor homogenization pressure to ensure consistent milk quality and texture.

Question 24.

The temperature of milk should not be less than for better homogenization:

Options:

1. 40°C
2. 80°C
3. 100°C
4. 60°C

Correct Answer: 4. 60°C

Solution:

Homogenization is most effective when the milk temperature is at least 60°C. At this temperature, fat globules are more fluid, and protein structures remain stable, facilitating uniform fat dispersion. Lower temperatures may lead to incomplete homogenization, affecting milk's quality and stability.

Quick Tip

Ensure milk is preheated to at least 60°C before homogenization to achieve optimal results.

Question 25.

The standard plate count (CFU/g) in ice-cream should not be more than as per FSSAI regulations:

Options:

1. 3,00,000
2. 2,50,000
3. 60,000
4. 1,00,000

Correct Answer: 2. 2,50,000

Solution:

According to the Food Safety and Standards Authority of India (FSSAI), the standard plate

count in ice cream should not exceed 2,50,000 CFU/g. Maintaining this microbial load limit ensures the safety and quality of the product. Regular testing and adherence to hygiene practices during production are essential to comply with these standards.

Quick Tip

Regular microbiological testing ensures compliance with FSSAI standards and consumer safety.

Question 26.

Four-ply laminated pouch and vacuum packaging enhances the shelf life of khoa up to at refrigeration temperature:

Options:

1. 120 days
2. 90 days
3. 60 days
4. 30 days

Correct Answer: 1. 120 days

Solution:

Using a four-ply laminated pouch along with vacuum packaging extends the shelf life of khoa to 120 days under refrigeration. This method reduces exposure to air and microbial contamination, significantly delaying spoilage. Refrigeration combined with advanced packaging ensures product stability and quality for longer durations.

Quick Tip

Combine vacuum packaging with refrigeration for optimal shelf life extension of perishable dairy products.

Question 27.

Soapy flavor defect in Gulabjamun is caused by:

Options:

1. Frying at low temperature for a short time
2. Frying at high temperature for a long time
3. Higher amount of baking powder
4. Lower amount of baking powder

Correct Answer: 3. Higher amount of baking powder

Solution:

The soapy flavor defect in Gulabjamun arises when excessive baking powder is used in the

dough. Baking powder contributes to the chemical leavening process, and an excess amount leads to an off-flavor reminiscent of soap. Ensuring the correct proportion of ingredients is critical to maintaining the authentic taste of Gulabjamun.

Quick Tip

Use precise measurements of baking powder to avoid flavor defects in confectionery items.

Question 28.

The yield of rabri from one liter of buffalo milk (Minimum fat 6.0% and SNF 9.0%) will be:

Options:

1. 10-20%
2. 20-30%
3. 30-40%
4. 40-45%

Correct Answer: 4. 40-45%

Solution:

Rabri preparation involves the slow condensation of buffalo milk, rich in fat (6.0%) and solids-not-fat (SNF, 9.0%). Due to its high-fat content, the yield from buffalo milk is relatively higher, ranging between 40-45% of the original volume. This makes buffalo milk an ideal choice for preparing traditional desserts like rabri.

Quick Tip

Choose high-fat milk for better yields in condensed dairy products like rabri.

Question 29.

Acidic flavor defect in cream is caused due to:

Options:

1. Use of sour milk for cream separation
2. Hydrolysis of fat by the action of lipase enzyme
3. Undesirable microbial contamination
4. Oxidation of the fat content due to exposure to strong sunlight

Correct Answer: 1. Use of sour milk for cream separation

Solution:

The use of sour milk during cream separation leads to an acidic flavor defect. Sour milk contains lactic acid produced by microbial fermentation, which imparts an off-taste to the

cream. Ensuring fresh milk is used in processing can help prevent this defect and maintain product quality.

Quick Tip

Always use fresh milk for cream separation to avoid flavor defects.

Question 30.

Cheesy/putrid flavor defect in cream and butter is caused by:

Options:

1. *Pseudomonas synxantha*
2. *Pseudomonas putrefaciens*
3. Coliform
4. *Pseudomonas nigrifaciens*

Correct Answer: 2. *Pseudomonas putrefaciens*

Solution:

Pseudomonas putrefaciens is responsible for the cheesy or putrid flavor defect in cream and butter. This microorganism produces proteolytic enzymes that break down milk proteins, resulting in unpleasant odors and off-flavors. Proper hygiene and cold storage are critical to preventing contamination by such spoilage bacteria.

Quick Tip

Maintain strict hygiene and appropriate storage temperatures to prevent bacterial spoilage in dairy products.

Question 31.

Alkaline flavor defect in butter is caused due to:

Options:

1. Use of sour neutralized cream
2. Over neutralization of cream
3. Storage of butter at high temperature for a long period
4. Use of milk from animals who consume bitter weeds

Correct Answer: 2. Over neutralization of cream

Solution:

Over neutralization of cream with alkalis to counteract acidity can result in an alkaline flavor defect in butter. This defect impairs the sensory quality and consumer acceptability of the product. To prevent such issues, careful control of the neutralization process is essential during butter manufacturing.

Quick Tip

Maintain optimal pH levels during cream neutralization to avoid flavor defects in butter.

Question 32.

Cheesy flavor defect in butter is caused due to:

Options:

1. Over neutralization of cream
2. Storage of butter at high temperature for a long period
3. Use of milk from animals who consume bitter weeds
4. Growth of proteolytic bacteria causing casein breakdown

Correct Answer: 4. Growth of proteolytic bacteria causing casein breakdown

Solution:

Cheesy flavor in butter arises from the breakdown of casein by proteolytic bacteria. These bacteria produce enzymes that degrade casein into peptides and amino acids, leading to an off-flavor. Maintaining hygiene during production and proper storage conditions can help mitigate this defect.

Quick Tip

Ensure strict hygiene and control microbial contamination during butter processing.

Question 33.

The best storage temperature for ghee is between:

Options:

1. 20–25°C
2. 25–30°C
3. 20–30°C
4. 30–35°C

Correct Answer: 3. 20–30°C

Solution:

Ghee is best stored at temperatures between 20–30°C to maintain its texture, flavor, and quality. Higher temperatures may cause oxidation, leading to rancidity, while lower temperatures can affect its consistency. Controlled storage conditions ensure a longer shelf life for ghee.

Quick Tip

Store ghee in airtight containers at optimal temperatures to preserve its quality.

Question 34.

Match List-I with List-II:

List-I (Ghee manufacturing method)	List-II (Fat recovery %)
(A) Indigenous method	(I) 92
(B) Direct cream method	(II) 93
(C) Creamy-butter method	(III) 88–92
(D) Pre-stratification method	(IV) 88–90

Options:

1. (A)-(IV), (B)-(I), (C)-(III), (D)-(II)
2. (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
3. (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
4. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Correct Answer: 1. (A)-(IV), (B)-(I), (C)-(III), (D)-(II)

Solution:

Different methods of ghee manufacturing yield varying fat recovery percentages. Indigenous methods yield 88–90% (A), while direct cream methods yield around 92% (B). Creamy-butter methods have a recovery range of 88–92% (C), and pre-stratification methods yield the highest recovery of 93% (D). Properly matching the methods and their fat recovery rates ensures better understanding and application in dairy production.

Quick Tip

Choose the ghee manufacturing method based on both fat recovery and operational requirements to optimize yield.

Question 35.

The optimum combination (ratio) of cocci and rod-shaped bacteria in yoghurt culture should be

Options:

1. 1:1
2. 1:2
3. 1:3
4. 1:4

Correct Answer: 1. 1:1

Solution:

In yoghurt production, the optimal ratio of cocci (e.g., *Streptococcus thermophilus*) to rod-shaped bacteria (e.g., *Lactobacillus delbrueckii subsp. bulgaricus*) is 1:1. This balance is

crucial for proper acidification, texture development, and flavor formation during fermentation. Deviating from this ratio may impact the sensory and functional properties of the yoghurt.

Quick Tip

Maintaining a 1:1 ratio ensures a synergistic relationship between the bacteria, promoting efficient yoghurt fermentation.

Question 36.

Which culture combination is used for Bifighurt?

- (A) *Streptococcus thermophilus*
- (B) *Lactobacillus delbrueckii* ssp. *bulgaricus*
- (C) *Bifidobacterium bifidum*
- (D) *Lactobacillus acidophilus*

Options:

- 1. (A) and (B) only
- 2. (A), (B), and (D) only
- 3. (A), (B), and (C) only
- 4. (B), (C), and (D) only

Correct Answer: 3. (A), (B), and (C) only

Solution:

Bifighurt is a probiotic yoghurt product that uses a combination of *Streptococcus thermophilus*(A), *Lactobacillus delbrueckii* ssp. *bulgaricus*(B), and *Bifidobacterium bifidum*(C). These bacteria work symbiotically to enhance probiotic benefits, improve gut health, and provide a balanced taste and texture. *Lactobacillus acidophilus*(D) is not typically used in Bifighurt.

Quick Tip

Use specific bacterial combinations for functional dairy products like Bifighurt to maximize health benefits.

Question 37.

Metallic flavor defect in lassi is caused due to:

Options:

- 1. Contamination of milk with zinc or chromium during heating
- 2. Contamination of milk with nickel or copper during heating
- 3. Contamination of milk with iron or magnesium during heating
- 4. Contamination of milk with iron or copper during heating

Correct Answer: 4. Contamination of milk with iron or copper during heating

Solution:

A metallic flavor in lassi arises from the leaching of metals like iron or copper into milk during heating. These metals catalyze oxidation reactions, which produce off-flavors. Avoiding the use of metallic containers or ensuring proper maintenance of equipment can prevent this defect.

Quick Tip

Use stainless steel or food-grade equipment to prevent metallic contamination in dairy products.

Question 38.

High acid and high alcohol kumiss should have the following composition:

Options:

1. 1.0% Lactic acid and 1.7–2.5% Ethanol
2. 0.8–1.0% Lactic acid and 2.5–3.0% Ethanol
3. 0.7% Lactic acid and 1.0–1.7% Ethanol
4. 0.6% Lactic acid and 0.5–1.0% Ethanol

Correct Answer: 1. 1.0% Lactic acid and 1.7–2.5% Ethanol

Solution:

Kumiss, a traditional fermented dairy product, contains both lactic acid and ethanol. The high acid and high alcohol variant has approximately 1.0% lactic acid and 1.7–2.5% ethanol, resulting from a dual fermentation process involving lactic acid bacteria and yeasts. This composition gives kumiss its distinct tangy and slightly alcoholic flavor.

Quick Tip

Study the fermentation conditions for kumiss to understand the interplay between acid and alcohol production.

Question 39.

The isoelectric pH of casein is:

Options:

1. 3.6
2. 5.6
3. 4.6
4. 6.6

Correct Answer: 3. 4.6

Solution:

The isoelectric pH of casein, the major protein in milk, is 4.6. At this pH, casein molecules lose their net charge, leading to aggregation and precipitation. This property is utilized in processes like cheese-making and acid coagulation of milk.

Quick Tip

Understanding the isoelectric point of casein is crucial for optimizing dairy product formulations.

Question 40.

Ice cream mix is homogenized at 2500 psi:

- (A) To decrease the milk fat globule size
- (B) To form a better emulsion
- (C) To contribute a smoother, creamier ice cream
- (D) To ensure emulsifier and stabilizer are well blended and evenly distributed in the ice cream mix

Options:

- 1. (A), (B), and (D) only
- 2. (A), (B), and (C) only
- 3. (A), (B), (C), and (D)
- 4. (B), (C), and (D) only

Correct Answer: 3. (A), (B), (C), and (D)

Solution:

Homogenization at 2500 psi reduces the size of milk fat globules (A), improves emulsion stability (B), and ensures a smoother and creamier texture in ice cream (C). Additionally, it evenly disperses emulsifiers and stabilizers throughout the mix (D). This process is critical for achieving high-quality ice cream.

Quick Tip

Homogenization ensures consistent texture and quality in ice cream production by optimizing fat dispersion.

Question 41.

The shelf life of ice cream at -18 to -29°C is near about:

Options:

- 1. 60 days
- 2. 180 days
- 3. 120 days

4. 90 days

Correct Answer: 2. 180 days

Solution:

At temperatures between -18 to -29°C, ice cream can be stored for approximately 180 days. This prolonged shelf life is due to the low temperatures that inhibit microbial growth and enzymatic activity, maintaining the product's quality and safety.

Quick Tip

Ensure consistent freezing temperatures to maintain ice cream quality throughout its shelf life.

Question 42.

Storage of paneer at higher temperatures leads to:

Options:

1. Sour flavor defect
2. Stale flavor defect
3. Flat flavor defect
4. Rancid flavor defect

Correct Answer: 4. Rancid flavor defect

Solution:

Higher storage temperatures cause the fat in paneer to oxidize, leading to rancid flavor defects. This defect results from lipid peroxidation, which produces off-flavors and odors. Proper refrigeration is essential to prevent such defects and preserve paneer's sensory attributes.

Quick Tip

Store paneer below 4°C to avoid rancidity and extend its shelf life.

Question 43.

Good quality of chhana can be obtained from cow milk when it is coagulated at temperature:

Options:

1. 78°C
2. 80°C
3. 82°C
4. 84°C

Correct Answer: 3. 82°C

Solution:

Cow milk coagulates optimally at 82°C for the preparation of high-quality chhana. At this temperature, casein proteins form a uniform matrix, yielding chhana with a soft, smooth texture ideal for making sweets like rasgulla and sandesh.

Quick Tip

Monitor coagulation temperatures closely to ensure consistent quality in chhana production.

Question 44.

The presence of colostrum in milk lead to body and texture defect in chhana:

Options:

1. Pasty
2. Loose
3. Grainy
4. Gummy mass

Correct Answer: 1. Pasty

Solution:

Milk with colostrum has a high protein content, which alters the texture of chhana, resulting in a pasty consistency. This defect makes the chhana unsuitable for traditional sweets. Proper screening of milk for colostrum is necessary before processing.

Quick Tip

Avoid using colostrum milk for chhana production to maintain desired texture.

Question 45.

Presence of colostrum in milk leads to a deeper..... color and appearance defect:

Options:

1. Brown
2. Red
3. Violet
4. Yellow

Correct Answer: 4. Yellow

Solution:

Colostrum in milk contains higher levels of carotenoids and proteins, which contribute to a

deeper yellow color in the processed product. This characteristic affects the appearance of dairy products like chhana or paneer, making them less appealing to consumers.

Quick Tip

Test milk for colostrum before processing to maintain the visual quality of dairy products.

Question 46.

For the production of rasogolla, the cow milk is heated to:

Options:

1. 70 to 74°C
2. 75 to 76°C
3. 76 to 80°C
4. 80 to 84°C

Correct Answer: 2. 75 to 76°C

Solution:

For rasogolla production, cow milk is heated to 75 to 76°C before coagulation. This temperature ensures proper protein denaturation and aggregation, resulting in a spongy texture ideal for soaking in sugar syrup.

Quick Tip

Control milk heating temperatures to achieve the perfect texture in rasogolla.

Question 47.

Caseinate is used as a source of:

Options:

1. Protein
2. Vitamin
3. Acid
4. Base

Correct Answer: 1. Protein

Solution:

Caseinate, derived from casein, is a high-quality protein source used in various nutritional supplements and food products. It provides essential amino acids and has excellent solubility, making it suitable for beverages and fortified foods.

Quick Tip

Caseinate is widely used in protein-rich food formulations for athletes and health-conscious individuals.

Question 48.

Ghee residue is a by-product of the ghee manufacturing industry, and tonnes are produced per annum in India:

Options:

1. 61,000
2. 71,000
3. 81,000
4. 91,000

Correct Answer: 4. 91,000

Solution:

India produces approximately 91,000 tonnes of ghee residue annually. This by-product is rich in proteins and lipids, making it a valuable ingredient for animal feed, food formulations, or biofuel production.

Quick Tip

Explore innovative uses of ghee residue to reduce waste and add value in the dairy industry.

Question 49.

Which of the following byproducts of the dairy industry is used as a natural antioxidant for improving the shelf life of food products?

Options:

1. Caseinates
2. Casein
3. Ghee residue
4. Buttermilk

Correct Answer: 3. Ghee residue

Solution:

Ghee residue contains natural antioxidants, such as tocopherols, which enhance the shelf life of food products by preventing oxidative rancidity. Its application in the food industry is growing due to its functional properties.

Quick Tip

Incorporate ghee residue in food products as a natural alternative to synthetic antioxidants.

Question 50.

Ghee residue can be utilized in the preparation of:

- (A) Chocolate
- (B) Burfi
- (C) Samosa filling
- (D) Chapatis
- (E) Shrikhand

Options:

- 1. (A), (B), (D), and (E) only
- 2. (A), (B), and (C) only
- 3. (A), (B), (C), and (D)
- 4. (A), (B), (C), (D), and (E) only

Correct Answer: 3. (A), (B), (C), and (D)

Solution:

Ghee residue is versatile and can be used in the preparation of various food items such as chocolate, burfi, samosa fillings, and chapatis. Its rich flavor and nutritional content enhance the taste and value of these products.

Quick Tip

Leverage the culinary potential of ghee residue in innovative food recipes.

Question 51.

The purpose of packaging is:

- (A) To protect a product from contamination of microorganisms
- (B) To protect a product from damage during transportation
- (C) To keep the product together
- (D) To protect a product from environmental changes

Options:

- 1. (A), (B), and (D) only
- 2. (A), (B), and (C) only
- 3. (A), (B), (C), and (D)
- 4. (B), (C), and (D) only

Correct Answer: 3. (A), (B), (C), and (D)

Solution:

Packaging serves multiple purposes, including protection from microbial contamination (A), damage during transportation (B), and environmental changes (D). It also ensures the product remains intact (C), enhancing its utility and appeal.

Quick Tip

Select appropriate packaging materials to ensure product safety and longevity.

Question 52.

Which of the following is NOT required for a packaging material?

- (A) Packaging material should not react with products
- (B) It should be non-toxic and non-tainting
- (C) Should be appealing to product presentation
- (D) Should have printing characteristics
- (E) It should be difficult to open, distribute, reseal, and store

Options:

- 1. (B) only
- 2. (A), (B), and (C) only
- 3. (E) only
- 4. (A), (B), (C), and (D) only

Correct Answer: 3. (E) only

Solution:

Packaging materials should be user-friendly and easy to open, reseal, and store. Difficulty in handling (E) is not a desirable property for packaging materials, as it reduces consumer convenience.

Quick Tip

Ensure packaging materials are functional and consumer-friendly while maintaining quality.

Question 53.

Which of the following tests are used to check the quality of packaging material?

- (A) Bursting strength
- (B) Clot on boiling test
- (C) Puncture strength
- (D) Water vapor transmission rate
- (E) Acidity test

Options:

1. (A), (B), (C), and (D) only
2. (A), (C), and (D) only
3. (A), (B), (C), and (E) only
4. (B), (C), and (E) only

Correct Answer: 2. (A), (C), and (D) only

Solution:

The quality of packaging materials is assessed using bursting strength (A), puncture strength (C), and water vapor transmission rate (D). These parameters ensure the durability, barrier properties, and overall performance of the packaging material.

Quick Tip

Quality testing ensures the reliability and safety of packaging materials for various applications.

Question 54.

Which of the following is NOT an advantage of plastics in the dairy industry?

Options:

1. Only food-grade plastic should be used in milk products
2. Most plastics are reusable
3. Loss of moisture from dairy products is nil
4. Low cost and ease of fabrication

Correct Answer: 1. Only food-grade plastic should be used in milk products

Solution:

Using only food-grade plastic is not considered an advantage but a safety requirement in the dairy industry. The advantages of plastics include reusability (2), prevention of moisture loss (3), and cost-effectiveness (4).

Quick Tip

Ensure compliance with food safety standards by using certified food-grade plastics.

Question 55.

In Modified Atmosphere Packaging gases are used:

Options:

1. N₃, CO₂, and H₂
2. N₂, CO, and O₂

3. CO, CO₂, and O₂

4. N₂, CO₂, and O₂

Correct Answer: 4. N₂, CO₂, and O₂

Solution:

Modified Atmosphere Packaging (MAP) uses nitrogen (N₂), carbon dioxide (CO₂), and oxygen (O₂) to extend the shelf life of food products. These gases help control microbial growth, oxidation, and other spoilage processes.

Quick Tip

Utilize MAP technology to enhance the freshness and shelf life of perishable food products.

Question 56.

Modified Atmosphere Packaging increases shelf life by:

Options:

1. 50–100%

2. 50–400%

3. 50–300%

4. 50–200%

Correct Answer: 2. 50–400%

Solution:

Modified Atmosphere Packaging (MAP) can extend the shelf life of food products by 50–400% depending on the product and storage conditions. By altering the composition of gases within the packaging, MAP inhibits spoilage due to microbial growth and oxidation.

Quick Tip

Implement MAP to significantly enhance the shelf life of fresh and processed foods.

Question 57.

The effective pH range for benzoic acid used as a chemical preservative in milk and milk products is:

Options:

1. 2.5–4.0

2. <5.0

3. 4.0–5.0

4. 2.0–3.0

Correct Answer: 1. 2.5–4.0

Solution:

Benzoic acid is effective as a preservative in acidic conditions, specifically within the pH range of 2.5–4.0. At this pH, benzoic acid remains predominantly in its undissociated form, which is more effective in inhibiting microbial growth.

Quick Tip

Use benzoic acid in acidic food systems to maximize its preservative effectiveness.

Question 58.

Which of the following herbs are NOT used in the preservation of milk and milk products?

Options:

1. Cinnamon, cloves, and red chili
2. Saffron, cloves, and black pepper
3. Ginger, cardamom, and cloves
4. Saffron, cloves, and green chili

Correct Answer: 4. Saffron, cloves, and green chili

Solution:

Saffron, cloves, and green chili are not commonly used for preserving milk and milk products. Herbs like cinnamon, cloves, and black pepper are more effective due to their antimicrobial properties, which inhibit spoilage organisms.

Quick Tip

Use antimicrobial herbs like cinnamon and cloves to enhance the preservation of dairy products.

Question 59.

The main end product (metabolite) of homofermentative lactic acid bacterial cultures is during milk fermentation is:

Options:

1. Acetic acid
2. Lactic acid
3. Propionic acid, CO₂, and ethanol
4. Lactic acid, acetic acid, propionic acid, CO₂, and ethanol

Correct Answer: 2. Lactic acid

Solution:

Homofermentative lactic acid bacteria metabolize lactose primarily into lactic acid as the main end product. This process lowers the pH of milk, aiding in the preservation and coagulation required for products like yoghurt and cheese.

Quick Tip

Homofermentative LABs are ideal for dairy fermentation due to their efficiency in lactic acid production.

Question 60.

The pH-neutral, water-soluble, low molecular weight substance, which is non-bacteriocin and resistant to nuclease, protease, and lipolytic enzymes, is:

Options:

1. Reuterin
2. Bacteriocins
3. Nutmeg
4. Cardamom

Correct Answer: 1. Reuterin

Solution:

Reuterin, a compound produced by *Lactobacillus reuteri**, is pH-neutral, water-soluble, and effective against a wide range of microbes. It is resistant to enzymes like nuclease, protease, and lipase, making it an excellent natural preservative for dairy and other food products.

Quick Tip

Incorporate Reuterin for natural preservation in functional dairy products.

Question 61.

The most important bacteriocins used as bio-preservatives include:

Options:

1. Nisin, pediocins, bifidin, and sakacins
2. Nisin, reuterin, bifidin, and sakacins
3. Nisin, pediocins, bifidin, and reuterin
4. Reuterin, pediocins, bifidin, and sakacins

Correct Answer: 1. Nisin, pediocins, bifidin, and sakacins

Solution:

Bacteriocins such as nisin, pediocins, bifidin, and sakacins are widely used as bio-preservatives.

These natural antimicrobial compounds inhibit the growth of spoilage and pathogenic microorganisms, enhancing food safety and shelf life.

Quick Tip

Incorporate bacteriocins in dairy and food processing to improve microbial safety.

Question 62.

Lactococcus lactis ssp. *lactis* produces which of the following antibacterial substances during fermentation:

Options:

1. Pediocins
2. Bifidin
3. Nisin
4. Sakacins

Correct Answer: 3. Nisin

Solution:

Nisin is an antibacterial substance produced by **Lactococcus lactis* ssp. *lactis** during fermentation. It is effective against gram-positive bacteria and is widely used as a preservative in dairy products like cheese.

Quick Tip

Nisin is a key bio-preservative in controlling spoilage organisms in dairy processing.

Question 63.

Which of the following is not a natural inhibitory substance found in raw milk?

Options:

1. Lactoferrin
2. Nisin
3. Immunoglobulins
4. Lysozyme

Correct Answer: 2. Nisin

Solution:

Nisin is not a natural component of raw milk but is produced by bacterial fermentation. Lactoferrin, immunoglobulins, and lysozyme are naturally occurring inhibitory substances that help protect milk from microbial contamination.

Quick Tip

Understand the natural defenses in raw milk to enhance its preservation methods.

Question 64.

How will you detect the presence of urea in milk?

Options:

1. When adulterated milk is treated with HCl and Resorcinol powder and boiled in water, it will give a red color
2. When adulterated milk is mixed with para-dimethyl amino benzaldehyde, it will become deep yellow colored
3. When adulterated milk is treated with para-phenylenediamine hydrochloric acid, it will give a dark blue color
4. When adulterated milk is treated with ferric chloride solution and concentrated sulfuric acid, violet color develops at the junction of two layers

Correct Answer: 2. When adulterated milk is mixed with para-dimethyl amino benzaldehyde, it will become deep yellow colored

Solution:

Urea adulteration in milk can be detected by mixing the sample with para-dimethyl amino benzaldehyde. The reaction produces a deep yellow color, confirming the presence of urea, which is a common adulterant.

Quick Tip

Use specific chemical tests to detect adulterants like urea in milk.

Question 65.

The following reaction is used for the detection of..... adulteration in milk sample:



Options:

1. Sodium carbonate
2. Urea
3. Sugar
4. Hydrogen peroxide

Correct Answer: 1. Sodium carbonate

Solution:

The presence of sodium carbonate in milk can be detected using silver nitrate (AgNO_3) and

potassium dichromate ($K_2Cr_2O_7$). The reaction produces a yellow color, indicating the presence of this alkaline adulterant.

Quick Tip

Regularly test for adulterants like sodium carbonate to ensure milk safety.

Question 66.

The following reaction is used for the detection of..... adulteration in milk sample:



Options:

1. Urea
2. Sugar
3. Formaldehyde
4. Water

Correct Answer: 2. Sugar

Solution:

Sugar adulteration in milk can be detected by adding hydrochloric acid (HCl) and resorcinol powder, then boiling the mixture. The formation of a red coloration indicates the presence of added sugar, which is used to falsely increase the density of milk.

Quick Tip

Use specific chemical reactions to detect sugar and other common adulterants in milk.

Question 67.

At birth, calves will normally have..... temporary incisors ready to appear through the gums of the jaw:

Options:

1. Two
2. Four
3. Eight
4. Twelve

Correct Answer: 3. Eight

Solution:

Newborn calves typically have eight temporary incisors that are ready to erupt through the gums. These teeth help calves begin the early stages of chewing, which is essential for their development and ability to graze.

Quick Tip

Monitor dental development in calves to assess their health and growth stages.

Question 68.

Match List-I with List-II:

List-I (Name of the Breeds)	List-II (Origin State of the Breed)
(A) Sahiwal	(I) Madhya Pradesh
(B) Tharparkar	(II) Maharashtra
(C) Nimari	(III) Punjab
(D) Dangi	(IV) Hyderabad

Options:

1. (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
2. (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
3. (A)-(I), (B)-(II), (C)-(IV), (D)-(III)
4. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Correct Answer: 4. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Solution:

The correct matches are:

(A) Sahiwal - Punjab (III): This is one of the best dairy breeds known for its high milk production.

(B) Tharparkar - Hyderabad (IV): This breed is a dual-purpose breed suitable for both milk production and draft purposes.

(C) Nimari - Madhya Pradesh (I): This breed is primarily used for agricultural labor due to its strength.

(D) Dangi - Maharashtra (II): Known for its adaptability to rugged terrains and excellent draft capacity.

These breeds have unique characteristics tied to their regional origins, making them suitable for specific purposes and environmental conditions.

Quick Tip

Familiarize yourself with the geographical origins of breeds to leverage their specialized traits in agricultural practices.

Question 69.

Arrange the following breeds of buffaloes according to decreasing order of their lactation yield:

- (A) Jaffarabadi
- (B) Mehsana

(C) Bhadawari

Options:

1. (A), (B), (C)
2. (B), (A), (C)
3. (C), (A), (B)
4. (C), (B), (A)

Correct Answer: 1. (A), (B), (C)

Solution:

Jaffarabadi buffaloes have the highest lactation yield, followed by Mehsana and then Bhadawari. Lactation yield is a critical parameter for assessing the productivity of dairy breeds.

Quick Tip

Choose buffalo breeds with high lactation yields for enhanced dairy production efficiency.

Question 70.

Buffalo population in India is:

Options:

1. 120 million
2. 85 million
3. 140 million
4. 150 million

Correct Answer: 2. 85 million

Solution:

India's buffalo population is approximately 85 million, making it one of the largest buffalo-rearing countries in the world. Buffaloes are essential for milk production and contribute significantly to the dairy industry.

Quick Tip

Promote buffalo husbandry practices to sustain and enhance dairy output in India.

Question 71.

The native state of Surati buffalo breed is:

Options:

1. Bihar

2. Maharashtra
3. Uttar Pradesh
4. Gujarat

Correct Answer: 4. Gujarat

Solution:

The Surati buffalo breed originates from Gujarat. Known for its good milk yield and adaptability, the breed is well-suited for the local climate and agricultural practices in the state.

Quick Tip

Study regional livestock breeds to better understand their characteristics and contributions to dairy farming.

Question 72.

The dual-purpose breed of cow is:

Options:

1. Sindhi
2. Mehsana
3. Sahiwal
4. Tharparkar

Correct Answer: 4. Tharparkar

Solution:

Tharparkar is a dual-purpose breed of cow, valued for both milk production and draught power. Originating from Rajasthan, it is well-adapted to arid conditions and is a key resource for sustainable farming in its native region.

Quick Tip

Dual-purpose breeds like Tharparkar play a vital role in regions with mixed farming practices.

Question 73.

Which of the following element is NOT present in milk:

Options:

1. K
2. Fe
3. Mg
4. Ca

Correct Answer: 2. Fe

Solution:

Milk contains elements like potassium (K), magnesium (Mg), and calcium (Ca) but has very low levels of iron (Fe). This is why milk is not considered a significant source of dietary iron.

Quick Tip

Supplement milk-based diets with iron-rich foods to prevent deficiencies.

Question 74.

Better quality chhana is prepared from:

Options:

1. Cow milk
2. Buffalo milk
3. Sheep milk
4. Camel milk

Correct Answer: 1. Cow milk

Solution:

Cow milk is preferred for making high-quality chhana due to its balanced protein content and lower fat levels, which result in a softer texture. Buffalo milk, on the other hand, yields a firmer chhana.

Quick Tip

Choose cow milk for making chhana intended for delicate sweets like rasgulla.

Question 75.

Match List-I with List-II:

List-I (Name of the Bacteria)	List-II (Shape of Their Cell)
(A) Coccus	(I) Spherical
(B) Bacillus	(II) Rod-shaped
(C) Vibrio	(III) Curved rods
(D) Spirillum	(IV) Coiled threads

Options:

1. (A)-(I), (B)-(II), (C)-(III), (D)-(IV)
2. (A)-(I), (B)-(III), (C)-(II), (D)-(IV)
3. (A)-(II), (B)-(III), (C)-(IV), (D)-(I)
4. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Correct Answer: 1. (A)-(I), (B)-(II), (C)-(III), (D)-(IV)

Solution:

- Coccus bacteria are spherical in shape (I).
- Bacillus bacteria are rod-shaped (II).
- Vibrio bacteria are curved rods (III).
- Spirillum bacteria are coiled threads (IV).

This classification is based on the morphology of bacterial cells, which is crucial for identification in microbiology.

Quick Tip
Understanding bacterial morphology aids in the identification and study of microbial species.