Exploring Food Preservation Techniques

Section 1: Multiple-Choice Questions

Instructions: Circle the best answer for each question.

1. Which of the following best explains the dual-action process of irradiation on different types of food?
   A. It only slows down the sprouting of vegetables like potatoes and onions.
   B. It destroys microbes in all foods and specifically increases the ripening period for fruits.
   C. It uses high temperatures to kill bacteria and slows ripening in fruits.
   D. It exclusively uses X-rays to prevent insect growth in foodgrains.

2. A food manufacturer wants to package potato wafers to ensure a long shelf-life without the product becoming stale or mouldy. Which preservation technique would be most suitable for this purpose?
   A. Filling the packets with nitrogen gas to create an inert atmosphere.
   B. Spraying the wafers with Melathion before packaging.
   C. Exposing the wafers to ionizing radiation.
   D. Adding a small amount of oil and salt to each packet.

3. How does pasteurisation, developed by Louis Pasteur, effectively prolong the safety of milk?
   A. By freezing the milk rapidly to halt all microbial activity.
   B. By adding chemical preservatives like sodium benzoate to the milk.
   C. By heating the milk to a specific high temperature and then cooling it quickly.
   D. By exposing the milk to smoke containing aluminium phosphide.

4. Which two methods described in the text primarily rely on temperature manipulation to preserve food?
   A. Smoking and Irradiation
   B. Use of preservatives and Use of insecticides
   C. Freezing and Pasteurisation
   D. Use of inert gas and Smoking

5. What is the key difference between the preservatives used in traditional pickles and those used in commercially packaged sauces?
   A. Pickle preservatives are chemical, while sauce preservatives are natural.
   B. Pickles use natural preservatives like salt and oil, whereas sauces often use chemical preservatives like acetic acid.
   C. Both use the same preservatives, but in different concentrations.
   D. Pickles are preserved by smoking, while sauces are preserved by pasteurisation.

6. The text mentions Melathion is sprayed on gunny bags. What is the specific purpose of this action?
   A. To destroy microbes and fungi inside the foodgrains.
   B. To protect the foodgrains from insects during storage.
   C. To slow down the sprouting of the foodgrains.
   D. To add a protective chemical coating to the gunny bags themselves.

7. Based on the information about irradiation plants in Maharashtra, what can be inferred about the primary agricultural products of the Lasalgaon area?

A. The area is a major producer of spices and condiments.
B. The area specializes in dairy farming and milk production.
C. The area is a significant hub for growing onions and potatoes.
D. The area primarily cultivates grains that are stored in gunny bags.

8. Which of the following is NOT an example of a chemical preservative mentioned in the text?
A. Citric acid
B. Sugar
C. Sodium benzoate
D. Acetic acid

Section 2: True or False

Instructions: Read each statement carefully and determine if it is TRUE or FALSE.

1. The fundamental principle of freezing as a preservation method is that low temperatures accelerate biological and chemical reactions in food.

TRUE / FALSE

2. Both irradiation and the use of nitrogen gas are effective methods for preventing the growth of organisms, such as insects or fungus, in food products.

TRUE / FALSE

Section 3: Short Answer Question

Instructions: Answer the following question in one or two complete sentences.

1. Considering the various methods described, why might a food producer choose pasteurisation for milk but irradiation for spices?

_____
_____
_____
_____

ANSWER KEY

Section 1: Multiple-Choice Questions

1.
B.
It destroys microbes in all foods and specifically increases the ripening period for fruits.
2.
A.

Filling the packets with nitrogen gas to create an inert atmosphere.

3.

C.

By heating the milk to a specific high temperature and then cooling it quickly.

4.

C.

Freezing and Pasteurisation

5.

B.

Pickles use natural preservatives like salt and oil, whereas sauces often use chemical preservatives like acetic acid.

6.

B.

To protect the foodgrains from insects during storage.

7.

C.

The area is a significant hub for growing onions and potatoes.

8.

B.

Sugar

Section 2: True or False

1.

FALSE.

Low temperatures *slow down* biological and chemical reactions.

2.

TRUE.

Irradiation destroys insects and microbes, while nitrogen gas prevents the growth of fungus and insects.

Section 3: Short Answer Question

1. (Sample Answer) A producer would choose pasteurisation for a liquid like milk because the heat-and-cool process is effective at killing microbes within the fluid. They would choose irradiation for dry spices because radiation can effectively penetrate packaging to destroy microbes and insects without altering the product's dry state.