



BIOLOGY

BOOKS - CENGAGE BIOLOGY

FOOD : SPOILAGE , PRESERVATION , AND ADULTERATION

Question

1. If you cut an apple , it shows brown soft spots inside , this is due to _____



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2. Oranges can be kept in open for more than 1 week without getting spoilt. Is this statement true or false ? Give reason for your answer.



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3. Mention the common adulterants used in the following food items :

(a) Suji

(b)Pulses

(c) Turmeric

(d) Coffee powder



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4. Which is the recent act enforced by Government of India to ensure the quality of food ?



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Mandatory Exercise Exercise Set I

1. Two lots of cooked dal are maintained at $30^{\circ}C$ and $45^{\circ}C$, respectively. Which one of these two temperatures is likely to cause spoilage earlier?



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2. Identify two preservation processes that can be applied to a particular food.

Food _____



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3. What is the role of salt and sugar in food preservation?



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4. Give reasons : Why does cooked food spoil quickly in summer?



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5. Give reasons : Why does food have to be put in boiling water or otherwise heated before it is canned?



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6. Give reasons : Why irradiation is referred as 'cold pasteurisation'?



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7. Name two commonly used chemical preservatives



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8. Name two commonly used antioxidants



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Mandatory Exercise Exercise Set II

1. Adulteration of food means

A. processing of food

B. transportation of food

C. storage of food

D. removing nutritive value of food

Answer: D



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2. Which is an accidental adulteration?

A. Stones in rice

B. Talcum powder in wheat flour

C. Jaggery in honey

D. Vegetables with traces of insecticides

Answer: D



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3. The common adulterant found in red chilli powder is

A. coloured saw dust

B. used tea powder

C. metanil yellow

D. papaya seed powder

Answer: A



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4. Ramya experiences numbness in her limbs due to accumulation of watery fluids. Name the disease and the adulterant that has caused it.



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5. How can chicory in coffee powder be detected?



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6. How will you find out adulterants in the following?

(a) Honey

(b) Milk



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7. Give the full form of FPO and ISI.



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8. When concentrated nitric acid is added to a sample of cooking oil to detect the adulteration, it turns

- A. yellow in colour
- B. black in colour
- C. reddish brown in colour
- D. yellowish brown in colour

Answer: C



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9. Which of the following is very harmful to health?

A. Old spices

B. Talc

C. Used tea leaves

D. Papaya seeds

Answer: B



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Consolidated Exercise

1. Read the passage given below and answer the questions that follow:

Archana, a girl of your age, was asked to do a project on ripening of fruits by her science teacher. She knew that many interesting chemical changes occur in fruits as they ripen. She browsed various sites on the Internet and finally decided to present her project by performing an experiment. Her experiment was to test for chemical changes in ripening

apples by painting them with an iodine solution.

For this, she took three apples ranging from green to the ones which were ripe. She pulled a thick slice out of the centre of each apple. She laid the apple slices side by side, from green to ripe, on the aluminium foil. Using the cotton swab, she applied iodine solution over each apple slice and covered it.

After a few minutes, she found that the unripe apple slice had turned dark blue, except for the centre section which remained white. The slices which were riper turned less blue and

the ripe slice remained the same.

Her teacher was very much satisfied with the explanation she had given for her result of the experiment.

What do you mean by ripening? Why the unripe slice of the apple turned dark blue and the riper one less blue?



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Consolidated Exercise Mcqs

1. Ripening of fruit takes place due to hormone

A. Ethylene

B. Auxin

C. Cytokinin

D. Abscisic acid

Answer: A



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2. Freeze drying preserve food under

A. $20^{\circ} C$

B. $-10^{\circ} C$ to $-25^{\circ} C$

C. $14 - 13^{\circ} F$

D. Both B and C

Answer: D



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3. Factors responsible for the natural decay in food are called

- A. External factor
- B. Internal factor
- C. Extrinsic factor
- D. None of these

Answer: B



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4. Rancidity is the chemical decomposition of

A. Fat

B. Protein

C. Carbohydrate

D. All of the above

Answer: A



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5. Vinegar is a

A. Dilute acetic acid

B. Sorbic acid

C. Benzoic acid

D. Potassium nitrate

Answer: A



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6. Lathyrus sativus (Khesari dal) causes

A. Lathyrism

B. Dropsy

C. Cancer

D. Tetanus

Answer: A



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7. Rancid oil destroys vitamin

A. A and B

B. A and E

C. A and C

D. E and D

Answer: B



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8. Sugar adulterated with chalk powder causes

A. Chest infection

B. Obesity

C. Diabetes

D. Stomach disorder

Answer: D



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9. The Food Safety and Standards Act was passed by Indian parliament in

A. 2005

B. 2006

C. 2007

D. 2008

Answer: B



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10. The government has also set certain imputations for standardization of food and to prevent adulteration.

A. Codex Alimentarius

B. The Agmark Standards

C. BIS

D. All of the above

Answer: D



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11. Suji adulterated with iron fillings causes

A. Tetanus

B. Paralysis

C. Death

D. Blindness

Answer: A



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12. Which of the following is used as an antioxidant?

A. Ascorbic acid

B. Propyl gallate

C. Butylated hydroxyanisole

D. All of the above

Answer: D



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13. The processing of food with ionizing radiation by either high energy electrons or X-rays or gamma rays is called

A. Irradiation

B. Radiation

C. Adulteration

D. Dehydration

Answer: A



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14. Which of the following means free from living organism?

A. Sterlisation

B. Pasteurisation

C. Incubation

D. Dehydration

Answer: A



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15. Which one of the following is deliberate or intentional adulteration?

A. Coating of pesticides on fruits

B. Rice-like stones in rice

C. Chalk powder in sugar

D. Grass in coriander

Answer: A::B::C::D



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16. Which of the following are true of prevention of food adulteration?

A. Prescribes minimum standards

B. Is not mandatory

C. Punishment includes imprisonment

D. Was enacted in the year 1954

Answer: A::C::D



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17. Which of the following is not adulteration?

A. Skimmed milk is sold cheaper than full cream milk.

B. Colour is added to jalebi.

C. Meat item is made from silk animal.

D. Inferior-quality food is mixed with the food item.

Answer: A



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18. Choose the food item which is correctly matched with its common adulterant.

A. Mustard seeds - argemone seeds

B. Butter - vanaspati

C. Milk - urea

D. Black pepper - papaya seeds

Answer: A::C::D



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19. Despite efforts to eliminate spoilage organisms during canning, sometimes canned foods are spoiled. This may be due to

A. spoilage before canning

B. under processing during canning

C. addition of brine solution

D. leakage of contaminated water through
can seams during cooling

Answer: A::B::D



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20. Food additives may be used to

- A. destroy nutrients
- B. disguise faulty products
- C. deceive customers
- D. enhance appearance

Answer: D



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21. Keeping food above $140^{\circ} F (60^{\circ} C)$

- A. increases microbial growth

B. slows down chemical deterioration

C. decreases chemical reactions

D. reduces the growth of pathogens

Answer: D



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Olympiad And Ntse Level Exercises

1. The adulterant used in turmeric powder is

A. tamarind seed powder

B. yellow saw dust

C. talcum powder

D. metanil powder

Answer: D



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2. Bread, beer, and wine are manufactured when alcoholic fermentation of glucose to ethanol is performed by yeast.

Which of the following five statements concerning this processes are correct?

I. Yeast cells lack mitochondria and therefore yeast carries out fermentation

II. One molecule of CO_2 is evolved for every molecule of ethanol that is produced.

III. Net two molecules of ATP are generated for every one molecule of glucose fermented

IV. 80% and more of the chemical energy of the glucose is released as heat.

V. In this fermentation, glycolysis is an integral part

A. II,III and IV

B. I, IV and V

C. I,II , III and V

D. II,III and V

Answer: D



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3. Rahul purchases 1 kg of green gram. After 15 days, the person opens the packet and finds out that green gram is spoiled. He checks the

packet and finds out there is no government seal to approve the food standard. Which seal is expected on the food product?

A. AGMARK

B. ISI

C. Hallmark

D. Both (1) and (2)

Answer: A



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4. Four test tubes of tuhar dal were taken with some water in each and labelled as A, B, C and D. A few drops of the following were added to these test tubes.

Which of the test tube would be able to confirm the presence of metanil yellow adulterant?

A. Test tube A to which NaOH was added

B. Test tube B to which HCl was added

C. Test tube C to which alcohol was added

D. Test tube D to which water was added

Answer: B



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5. Which of the following would be considered cases of adulteration according to the PFA act?

- (i) Mustard oil showing traces of argemone oil.
- (ii) Meat packed in transparent polythene.
- (iii) Permitted preservatives within the amount prescribed.

(iv) Mixture of broken basmati grains in basmati rice of better quality.

A. (i) only

B. (i) and (iv)

C. (i) and (ii)

D. (ii),(i) and (iv)

Answer: B



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6. Nita brings some small fish to her house. She would like to preserve them for 6-7 months and taste different recipes cooked by it. What method would you suggest her to preserve the fish?

- A. Irradiation
- B. Spray drying
- C. Vacuum drying
- D. Freeze drying

Answer: D



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7. Recently in the news there was an awareness programme about low quality adulterated food products.

What adulterants can be present in food products like (a) sweet (b) honey (c) sugar (d) ghee?

A. a-metanal yellow, b-jaggery, c-chalk powder, d-boiled bones of cows and pigs

B. a-sugar, b-chalk powder, c-chicory, d-white powder

C. a-argomone seeds, b-metanil yellow, c-water, d-vanaspathi

D. a-metanil yellow, b-sugar, c-saw dust, d-vanaspathi

Answer: A



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8. Meat which can be spoiled by bacteria such as Salmonella, Clostridium are preserved by a unique method of food preservation. This technique creates free radicals in food, which can destroy cell membranes and attack DNA and proteins, thus preventing growth of microorganisms. Which is this process?

A. Pasteurisation

B. Irradiation

C. Vacuum drying

D. Freezing

Answer: B



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9. Take about one teaspoonful of melted ghee with equal quantity of conc. HCl in a test tube and add to it a pinch of cane sugar. Shake well for one minute and test it after 5 minutes. Appearance of crimson colour in lower layer shows the presence of

A. vegetable oil

B. cotton seed oil

C. vanaspathi

D. animal fats

Answer: C



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Challenging Exercise

1. You offer to bring some fresh fruit to a family outing, so you make a platter of strawberries, pineapples, and apples. By the time to get to the picnic everything cooks good except for the apples which have turned an unpalatable brown appearances. Write your views regarding brown coloured appearance of the apple.



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