

Food Chemistry Questions with Solutions

Q1. Which of the following is a fat-soluble vitamin?

- (a) Vitamin A
- (b) Vitamin B
- (c) Vitamin C
- (d) None of the above

Answer: (a) Vitamin A is a fat-soluble vitamin along with vitamin D, vitamin E and vitamin K.

Q2. Which of the following cholesterol is referred to as good cholesterol?

- (a) HDL: LDL
- (b) HDL
- (c) LDL
- (d) None of the above

Answer: (b) HDL is the abbreviation of high-density lipoprotein, which is also referred to as good cholesterol.

Q3. The addition of sugar in the milk is regarded as

- (a) Adulteration
- (b) Addition
- (c) Preservation
- (d) None of the above

Answer: (a) The addition of sugar in the milk is regarded as adulteration.

Q4. Which of the following disease is caused due to the deficiency of vitamin D?

- (a) Scurvey
- (b) Rickets
- (c) Both (a) and (b)
- (d) None of the above

Answer: (b) Scurvey is caused due to the deficiency of vitamin D.

Q5. Which of the following vitamin is a water-soluble vitamin?

- (a) Vitamin A
- (b) Vitamin B
- (c) Vitamin C
- (d) None of the above

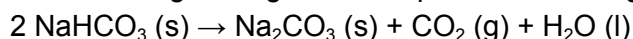
Answer: (c) Vitamin C, i.e. ascorbic acid, is a water-soluble vitamin.

Q6. What is food chemistry?

Answer: Food chemistry is the branch of chemistry concerned with studying the biochemical character of food, its effects and how they are processed in the body. It deals with the effects of numerous processing techniques on specific food items and methods of enhancing food quality.

Q7. What happens when we heat the baking soda?

Answer: Baking soda is the common name for sodium bicarbonate. It is typically used for baking food items. Baking soda gets decomposed on heating and liberates carbon dioxide gas.



Q8. Give some examples of food chemical changes around us?

Answer: Typically, a chemical change is characterised by forming a new substance. Some examples of food chemical changes around us are mentioned below.

1. The baking of cake is a chemical change. The cake becomes spongy due to the decomposition of sodium bicarbonate leading to the liberation of the carbon dioxide gas.
2. Caramelisation is a chemical change. It leads to the decomposition of sugar molecules to impart a specific taste and aroma.

Q9. What are the main components of the food?

Answer: The main components of food are mentioned below.

1. Carbohydrates
2. Proteins
3. Lipids
4. Water
5. Vitamins
6. Minerals
7. Colours
8. Flavours
9. Additives
10. Enzymes

Q10. What is the role of an enzyme in food chemistry?

Answer: Enzymes are the natural catalysts present in food items that enhance the reaction rate by completing the reaction in less time and energy. It is used in processes like baking, brewing and fermentation.

Q11. What is a food additive? How can we classify them?

Answer: A food additive is a substance added to food items to preserve food, add flavour, and improve the taste, impression and other sensorial grades of the food.

We can classify food additives into six classes as

1. Food Flavour

2. Food Preservative
3. Food Dye
4. Food Sweetener
5. Food Stabiliser
6. Food Emulsifier

Q12. What is a food sweetener? Give some examples of food sweeteners.

Answer: A food sweetener is an artificial and non-nutritive compound added to food items to increase their sweetness. It is a zero-calorie or low-calorie alternative and is safe to consume when added to guided concentration.

Aspartame, saccharin, sucralose and alitame are some examples of food sweeteners.

Q13. What is a food preservative? Give some examples of food preservatives.

Answer: A food preservative is a substance added to food items to protect the food items from microorganism growth.

Sodium benzoate and salts of sorbic acid and propanoic acid are some examples of food preservatives. Common salt, vegetable oil and sugar also work as food preservatives.

Q14. Differentiate between emulsifier and stabiliser.

Answer:

S. No.	Emulsifier	Stabiliser
1.	An emulsifier is a substance which stabilises an emulsion by increasing its stability.	A stabiliser is a substance that avoids any undesirable change in the state of substances.
2.	Mustard, soy, egg lecithin, carrageenan, canola oil and guar gum are some examples of emulsifiers.	Gelatin, pectin, sodium alginate, guar gum, sodium carboxymethyl cellulose (CMC) and carrageenan are some examples of stabilisers.

Q15. Match the following.

Column I	Column II
Food components	Products of digestion
Carbohydrates	Fatty acids and glycerol
Proteins	Sugar
Fats	Amino acids

Answer:

Column I	Column II
Food components	Products of digestion
Carbohydrates	Sugar
Proteins	Amino acids
Fats	Fatty acids and glycerol

Practise Questions on Food Chemistry

Q1. How is chemistry used in food?

Answer: Chemistry plays a critical role in food chemistry. Food chemistry is the branch of chemistry concerned with studying the biochemical character of food, its effects and how they are processed in the body. It helps in studying the effects of numerous processing techniques on specific food items and methods of enhancing food quality.

For example, food additives are used to extend the shelf life of food items; Colours can make food more enticing. Moreover, flavours are used to make foods tastier, and health supplements are used as energy sources.

Q2. Why is food chemistry essential?

Answer: Food chemistry plays an important role in determining the biochemical character of food, its effects and how they are processed in the body. It also tells us about the structure and properties of foods and the chemical transformations they face. It also helps study the effects of numerous processing techniques on certain food items and methods of enhancing food quality.

Q3. Why are chemicals added to food?

Answer: Food additives are substances added to food items to sustain or improve the freshness, safety, consistency, flavour, or appearance of food items. Before usage, food additives need to be inspected for detrimental impacts on human health.

Q4. What is the primary consideration of food chemistry?

Answer: Food chemistry deals with the composition of food items and tells us about the desirable and undesirable reactions controlled by a variety of physical and chemical parameters.

Q5. Name the enzyme responsible for breaking the starch, carbohydrates and protein molecules.

Answer: Amylase breaks down starches and carbohydrates into sugars. In contrast, protease breaks down proteins into amino acids.

