

1. COMPONENTS OF FOOD (Solutions)

TEACHING TASK (Page 6 – 10)

Multiple Choice Questions

1) Which solution is NOT mentioned as necessary for testing food nutrients?

Answer: C) Vinegar

Solution: Iodine is used for starch testing, copper sulfate and caustic soda are used for protein testing. Vinegar is not mentioned as a solution for nutrient testing.

2) Which solutions are used in the protein test?

Answer: B) Copper sulfate solution and caustic soda solution

Solution: The protein test (Biuret test) requires copper sulfate solution and caustic soda (sodium hydroxide) to detect proteins, indicated by a violet color change.

3) What do you need to do before testing a solid food item for protein?

Answer: C) Make it into a paste or powder

Solution: Solid food items must be ground into a paste or powder to allow proper mixing with test solutions for accurate protein testing.

4) How can you tell if a food item contains fat?

Answer: C) It leaves an oily patch on paper

Solution: The fat test involves rubbing food on paper; a translucent oily patch indicates the presence of fat.

5) What should you do with the paper after rubbing the food item on it to test for fat?

Answer: B) Let it dry

Solution: Letting the paper dry helps confirm the presence of fat, as water evaporates, leaving a persistent oily patch.

6) If a food item contains water, what happens to the oily patch after drying?

Answer: D) It remains unchanged

Solution: An oily patch from fat remains visible after drying, as fats do not evaporate like water.

7) How do you observe the color change in the starch test?

Answer: C) By looking for a blue-black color

Solution: The starch test involves adding iodine solution, which turns blue-black in the presence of starch.

8) What indicates a positive result for the fat test after the paper has dried?

Answer: D) An oily patch remains visible

Solution: A persistent oily patch on dried paper confirms the presence of fat.

9) How can you test multiple food items for starch?

Answer: C) Add iodine solution to each item

Solution: Each food item is tested separately with iodine solution to check for a blue-black color indicating starch.

10) Which vitamin helps our body use calcium for bones and teeth?

Answer: C) Vitamin D

Solution: Vitamin D facilitates calcium absorption, essential for strong bones and teeth.

11) What is the role of dietary fibers in our body?

Answer: B) Aid in digestion by getting rid of undigested food

Solution: Dietary fibers (roughage) promote digestion and help eliminate undigested waste.

12) How does water benefit our body according to the paragraph?

Answer: B) It helps absorb nutrients and remove waste as urine and sweat

Solution: Water aids nutrient absorption and waste excretion through urine and sweat.

13) What happens if vegetables and fruits are washed after cutting or peeling?

Answer: B) Some vitamins may be lost

Solution: Water-soluble vitamins (e.g., Vitamin C) can leach out when cut or peeled produce is washed.

14) Why is cooking food beneficial?

Answer: B) It makes food easier to digest and improves taste

Solution: Cooking breaks down complex nutrients, enhancing digestibility and flavor.

15) What nutrient is easily destroyed by heat during cooking?

Answer: B) Vitamin C

Solution: Vitamin C is heat-sensitive and can be lost during cooking.

16) What is the potential consequence of eating too much fatty food?

Answer: B) Obesity

Solution: Excess fat consumption can lead to weight gain and obesity.

17) Why should we include some raw fruits and vegetables in our diet?

Answer: B) They contain nutrients that can be lost during cooking

Solution: Raw produce retains heat-sensitive nutrients like Vitamin C.

18) What can happen if a person's diet is low in both carbohydrates and proteins for a long time?

Answer: B) Their growth may stop completely, and they may become very thin and weak

Solution: Carbohydrates provide energy, and proteins support growth; their deficiency causes stunted growth and weakness.

19) How can deficiency diseases be prevented?

Answer: B) By consuming a balanced diet

Solution: A balanced diet provides all essential nutrients, preventing deficiency diseases.

Advanced Level

More than One Answer Type

20) Which observations indicate the presence of fat in a food item?

Answer: C) There is an oily patch on the paper, D) Light can be seen faintly through the oily patch on the paper

Solution: An oily patch on paper, which appears translucent when held to light, confirms fat presence. Violet or blue-black colors relate to protein or starch tests.

21) Which of the following nutrients are considered 'energy-giving foods'?

Answer: A) Carbohydrates, C) Fats

Solution: Carbohydrates and fats are primary energy sources; proteins are mainly for growth, and vitamins are protective.

22) What are the functions of dietary fibers (roughage) in our body?

Answer: B) Aid in digestion, C) Help our body get rid of undigested food

Solution: Fibers promote digestive health and facilitate waste elimination, not energy or muscle building.

Reason and Assertion Type

23) Assertion (A): Repeatedly washing rice and pulses can remove some vitamins and minerals.

Reason (R): The skins of many vegetables and fruits have vitamins and minerals.

Answer: B) Both A and R are true but R is not the correct explanation of A.

Solution: Repeated washing removes water-soluble vitamins and minerals from rice and pulses. The reason about vegetable/fruit skins is true but unrelated to rice/pulses washing.

24) Assertion (A): Cooking improves the taste of food and makes it easier to digest.

Reason (R): Many proteins and minerals are lost if too much water is used during cooking and then thrown away.

Answer: B) Both A and R are true but R is not the correct explanation of A.

Solution: Cooking enhances taste and digestibility, but nutrient loss due to excess water is a separate issue, not explaining the assertion.

Matrix Matching Type

25) Match the vitamins with their deficiency diseases:

Answer:

Vitamin A - R. Loss of vision

Vitamin B1 - P. BeriBeri

Vitamin C - S. Scurvy

Vitamin D - Q. Rickets

Solution:

Vitamin A deficiency causes vision issues (e.g., night blindness).

Vitamin B1 (thiamine) deficiency causes BeriBeri.

Vitamin C deficiency causes Scurvy.

Vitamin D deficiency causes Rickets.

Comprehension Type

26) Which vitamin is primarily responsible for helping our body fight against many diseases?

Answer: B) Vitamin C

Solution: The passage states Vitamin C helps the body fight diseases.

27) Which vitamin is categorized as part of the Vitamin B-complex group?

Answer: None of the options (A, B, C, D) directly match, but based on the passage, the answer is not explicitly listed. Assuming a contextual error, no correct option fits.

Solution: The passage mentions Vitamin B-complex but none of A, C, D, or K belong to it. Likely a question error; B-complex is the group itself.

Integer Type

28) How many drops of copper sulfate solution should be added to the test tube for testing protein?

Answer: 2

Solution: Standard protein testing (Biuret test) typically involves adding 2-3 drops of copper sulfate solution to the food sample mixed with caustic soda.

Learners Task (Page 10 – 14)

Multiple Choice Questions

1) What should students avoid doing during the nutrient tests?

Answer: C) Eating or tasting any chemicals

Solution: Safety protocols prohibit tasting chemicals like iodine or caustic soda used in nutrient tests.

2) What solution is used to test for starch in food items?

Answer: C) Dilute iodine solution

Solution: Dilute iodine solution is used to test for starch, turning blue-black if present.

3) What color change indicates the presence of starch in a food item?

Answer: B) Blue-black

Solution: Iodine turns blue-black in the presence of starch.

4) What indicates the presence of protein in a food item?

Answer: B) A violet color

Solution: The Biuret test (copper sulfate + caustic soda) produces a violet color for proteins.

5) What is the purpose of adding water in the protein test?

Answer: B) To dissolve the food paste or powder

Solution: Water helps dissolve the food sample into a solution for mixing with test reagents.

6) What should you do after adding all solutions in the protein test?

Answer: C) Shake the test tube and let it sit

Solution: Shaking mixes the reagents, and letting it sit allows the violet color to develop if proteins are present.

7) What is the primary function of carbohydrates in our body?

Answer: A) Provide energy

Solution: Carbohydrates are the body's main energy source.

8) Which nutrient is considered an 'energy-giving food' along with carbohydrates?

Answer: B) Fats

Solution: Fats, like carbohydrates, provide energy, while proteins are for growth and vitamins/minerals are protective.

9) Foods rich in proteins are known as:

Answer: C) Body-building foods

Solution: Proteins support growth and repair, earning them the term "body-building foods."

10) What is a balanced diet?

Answer: B) A diet that includes all nutrients in the right amounts

Solution: A balanced diet contains appropriate proportions of all nutrients for health.

11) Why is roughage important in our diet?

Answer: B) It helps in digestion

Solution: Roughage (fiber) aids digestion by promoting bowel movements.

12) Do people of all ages need the same type of diet?

Answer: B) No, dietary needs can vary by age

Solution: Nutritional needs differ across age groups (e.g., children need more for growth, elderly need less energy).

13) How does the amount of physical work we do affect our diet?

Answer: B) It determines the amount and type of nutrients we need

Solution: Physical activity influences energy and nutrient requirements (e.g., more carbs for active individuals).

14) Which of the following foods are mentioned as nutrient-rich?

Answer: A) Pulses, groundnut, soybean

Solution: These are protein-rich, nutrient-dense foods, unlike junk foods or refined carbs.

15) What is a balanced diet?

Answer: B) A diet that includes all nutrients in the right amounts

Solution: Repeated question; same answer as Q10.

16) How does the amount of physical work we do affect our diet?

Answer: B) It determines the amount and type of nutrients we need

Solution: Repeated question; same answer as Q13.

17) What are deficiency diseases?

Answer: B) Diseases caused by a lack of one or more nutrients

Solution: Deficiency diseases (e.g., scurvy) result from insufficient nutrient intake.

18) Which of the following symptoms might occur due to a long-term lack of proteins in a person's diet?

Answer: B) Stunted growth and a swollen face

Solution: Protein deficiency (e.g., kwashiorkor) causes stunted growth and edema (swollen face).

Advanced Level

More than One Answer Type

19) Which of the following are correct procedures for testing for fats?

Answer: A) Wrap a small amount of the food item in a piece of paper, C) Crush the food item carefully so the paper doesn't tear, D) Let the paper dry if the food item contains water

Solution: Fat testing involves wrapping and crushing food on paper to leave an oily patch after drying. Iodine is for starch, not fats.

20) Which vitamins are mentioned as important for keeping our eyes healthy?

Answer: A) Vitamin A

Solution: The comprehension passage (Teaching Task Q26) states Vitamin A keeps eyes healthy. B-complex is a group, not specifically for eyes.

21) Water helps our body in which of the following ways?

Answer: A) Absorb nutrients from food, C) D Remove waste some foods wastes as urine and sweat

Solution: Water aids nutrient absorption and waste excretion (Teaching Task Q12). It doesn't provide vitamins or build bones.

Reason and Assertion Type

22) Assertion (A): A balanced diet includes all nutrients our body needs in the right amounts.

Reason (R): A diet with too much of one nutrient and too little of another cannot support growth and good health.

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

Solution: A balanced diet ensures proper nutrient proportions, and imbalances hinder health, as R explains.

23) Assertion (A): Including raw fruits and vegetables in our diet is important.

Reason (R): Vitamin C is easily destroyed by heat during cooking.

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

Explanation: Raw fruits and vegetables are important retain nutrients like Vitamin C, which is heat-sensitive, as R explains.

Matrix Matching Type

24) Match the nutrients with their functions:

Answer: Carbohydrates – C. Provide energy

Fats – E. Provide much more energy compared to the same amount of carbohydrates

Proteins – B. Needed for growth and repair

Vitamins – A. Help protect against diseases and maintain various bodily functions

Minerals – D. Essential for proper growth and good health

Solution:

Carbohydrates: Primary energy source.

Fats: High-energy source (more calories per gram).

Proteins: Growth and repair.

Vitamins: Disease prevention and bodily functions.

Minerals: Support growth and health.

Comprehension Type

25) What is suggested as a preventive measure for deficiency diseases according to the paragraph?

Answer: B) Consuming a balanced diet

Solution: The passage explicitly states a balanced diet prevents deficiency diseases.

26) What is implied about the relationship between deficiency diseases and a balanced diet?

Answer: C) A balanced diet can prevent deficiency diseases

Solution: The passage implies that adequate nutrient intake via a balanced diet prevents deficiencies.

Integer Type

27) How many drops of dilute iodine solution should be added to the food item for testing starch?

Answer: 2

Solution: Standard starch testing involves adding 2-3 drops of dilute iodine solution to observe a blue-black color change.

