

Food and Its Components

1. Reena took some moong seeds and soaked them overnight in water. Next day, after draining out the water, she wrapped the seeds in a wet cloth. After one day, she observed small white structures growing out of the seeds. These small white structures will develop into

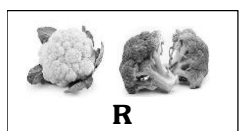
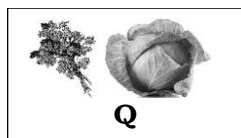
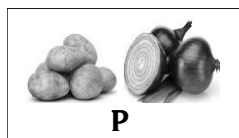
(a) Stems (b) Leaves
(c) Roots (d) Flowers

2. Select the option with the correct sequence of words to fill the blanks in the given sentences.

(A) Cod liver oil is a rich source of (i).
(B) Deficiency of vitamin C in body causes a disease known as (ii).
(C) Goitre is caused by the lack of (iii) in the diet.
(D) Deficiency of (iv) can lead to rickets in children and osteoporosis in adults.

	(i)	(ii)	(iii)	(iv)
(a)	Vitamin D	Rickets	Potassium	Magnesium
(b)	Vitamin A	Scurvy	Iodine	Calcium
(c)	Vitamin C	Rickets	Iodine	Calcium
(d)	Vitamin B	Scurvy	Potassium	Protein

3. Green plants are known as producers. They prepare more food than they need. The extra food is stored in different parts of the plant. Identify the parts of the plant from which the following food items (P, Q, R and S) are obtained and select the correct option.



P	Q	R	S
(a) Stem	Leaf	Flower	Seed
(b) Root	Flower	Leaf	Fruit
(c) Fruit	Leaf	Seed	Flower
(d) Leaf	Fruit	Stem	Root

4. Read the following passage carefully.
P helps to maintain strong eyesight and healthy skin. Q is required for normal growth of bones and teeth in children. R is essential for proper

functioning of muscles and nerves. S is needed for natural clotting of blood.

Identify P, Q, R and S and select the incorrect statement regarding these.

- (a) Q is produced when the skin is exposed to sunlight.
(b) R is a mineral, deficiency of which causes spasms, poor digestion, anxiety and sleeplessness.
(c) Cod liver oil is a good source of both P and S.
(d) S is synthesised in our body by bacteria present in the gut.

5. Following are the properties of four minerals P, Q, R and S. Identify them and select the correct option.

P: It is required for proper functioning of thyroid gland.

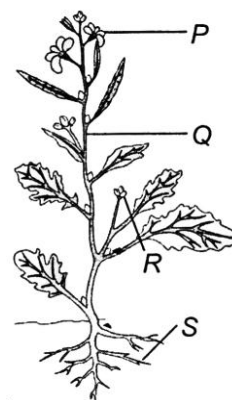
Q: It helps in maintaining body's water balance,

R: It is important for haemoglobin formation.

S: It strengthens bones and teeth and helps in blood clotting.

- (a) Deficiency of P causes dryness of eyes and inflammation of tongue,
(b) Q is also required for the proper functioning of nervous system.
(c) Deficiency of R causes goitre.
(d) S also helps to fight infections and keeps skin and mouth healthy.

6. We eat different parts of plants as food. Refer to the given figure of a typical plant and select the option that correctly matches the labelled parts (P, Q, R and S) with examples of plants in which they are edible.



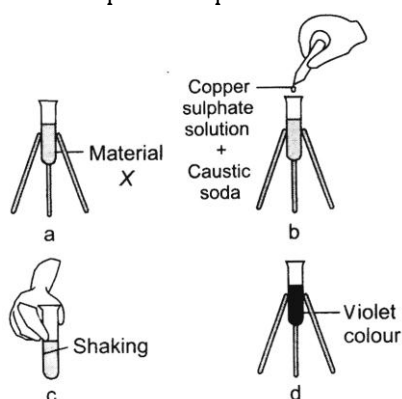
- (a) P - Hibiscus; Q - Sweet potato; R - Pepper; S - Spinach
(b) P - Broccoli; Q - Potato; R - Clove; S - Turnip

- (c) P - Cauliflower; Q - Onion; R - Pepper; S - Ginger
 (d) P - Broccoli; Q - Radish; R - Asparagus; S - Brinjal

7. Select the incorrect match.

	Minerals	Deficiency disease
(a)	Iron	Anaemia
(b)	Calcium	Rickets
(c)	Iodine	Goitre
(d)	Phosphorus	Marasmus

8. Observe the given experimental figures carefully. What does this experiment prove?



- (a) Material X contains proteins.
 (b) Material X contains carbohydrates.
 (c) Material X contains fats.
 (d) Material X contains iodine.

9. Consider the following statements (i)-(iv) and select the option that correctly identifies true (T) and false (F) ones.

- (i) Sucrose is the sugar found in milk.
 (ii) Saturated fats are solids at room temperature while unsaturated fats are liquids.
 (iii) Fat soluble vitamins are not stored in our body and need to be regularly supplied through food.
 (iv) Vitamin C is very sensitive to heat and is easily destroyed during cooking.
 (v) Our body can make two vitamins, i.e., vitamin K and vitamin D.

	(i)	(ii)	(iii)	(iv)	(v)
(a)	T	F	F	T	T
(b)	F	T	F	T	T
(c)	T	T	F	T	T
(d)	F	F	F	T	T

10. Which of the following options contains foods obtained from roots of the plant?
 (a) Spinach, Cabbage, Coriander

- (b) Potato, Mango, Broccoli
 (c) Sugarcane, Onion, Beetroot
 (d) Radish, Turnip, Carrot

11. A child is suffering from a deficiency disease. He shows the following symptoms:
 (i) Swelling of ankle, feet and belly
 (ii) Diarrhoea
 (iii) Scaly skin
 (iv) Mental retardation
 Identify the deficiency disease and the deficient nutrient in the child's body.

Deficiency disease	Deficient nutrient
(a) Kwashiorkor	Proteins
(b) Goitre	Iodine
(c) Anaemia	Iron
(d) Rickets	Vitamin D

12. Refer to the given groups (i)-(iii). Each group contains an odd member. Identify the odd ones in each group and select the correct option,
 (i) Calcium, Potassium, Iodine, Sodium
 (ii) Vitamin A, Vitamin B, Vitamin D, Vitamin E
 (iii) Oil, Cheese, Butter, Ghee

	(i)	(ii)	(iii)
(a)	Calcium	Vitamin D	Butter
(b)	Iodine	Vitamin B	Oil
(c)	Sodium	Vitamin E	Cheese
(d)	Potassium	Vitamin K	Ghee

13. Aarushi took two food samples X and Y in separate test tubes. She added 2-3 drops of Benedict's solution in food sample X and heated it while she added two drops of copper sulphate solution and few drops of caustic soda solution in food sample Y. She observed that sample X turned brick-red while sample Y turned purple. Which of the following is correct regarding X and Y?

- (a) X consists of protein while Y consists of starch.
 (b) X consists of sugar while Y consists of protein.
 (c) X consists of starch while Y consists of protein.
 (d) X consists of sugar while Y consists of starch.

14. Study the given table.

Vitamin	Source	Deficiency
B ₁	(i)	Beri-Beri
(ii)	Carrot	Night blindness
D	Sunlight	(iii)
C	Orange	(iv)

Select the correct option for (i), (ii), (iii) and (iv).

(i)	(ii)	(iii)	(iv)
(a) Milk	A	Scurvy	Rickets
(b) Milk	E	Rickets	Scurvy
(c) Whole grains	A	Rickets	Scurvy
(d) Whole grains	A	Scurvy	Rickets

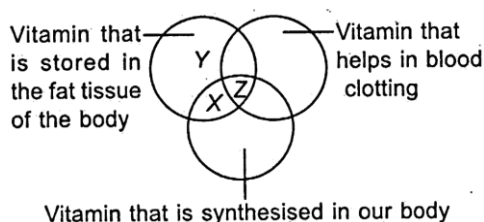
15. Which of the following statements is/are incorrect?
- (i) Fats deposited in our body act as shock absorbers and protect us from injury.
(ii) Kwashiorkor is caused by deficiency of protein, carbohydrate and fat.
(iii) Roughage neither releases energy nor helps in tissue or body building.
(iv) Starch containing food item turns bluish black in colour on undergoing iodine test.
- (a) (i) and (ii) only
(b) (ii) only
(c) (iii) only
(d) (ii) and (iv) only

Achievers Section (HOTS)

16. Given below are the four food components (P-S) and their corresponding sources.
- P - Meat, Fish, Egg
Q - Butter, Ghee, Margarine
R - Bread, Biscuit, Potato
S - Amla, Tomato, Orange
- Select the incorrect statement regarding them.

- (a) Deficiency of P causes marasmus in children whereas deficiency of Q causes kwashiorkor in adults.
(b) Among P, Q, R and S, 1 gram of Q produces the maximum energy.
(c) Excess of R gets stored in body cells and is used for production of energy whenever required.
(d) Deficiency of S leads to a disease in which gums swell up and bleed.

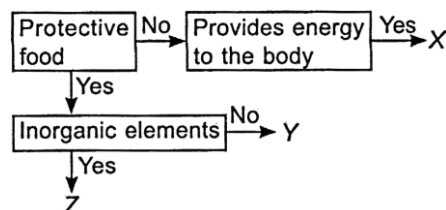
17. Refer to the given Venn diagram and select the correct statement regarding X, Y and Z.



- (a) Deficiency of X and Y causes night blindness and scurvy, respectively.

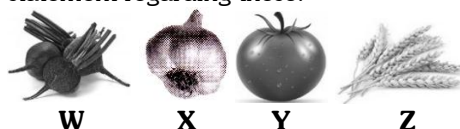
- (b) X helps in the normal growth of bones in children while Y keeps reproductive system healthy.
(c) Deficiency of Z causes pellagra i.e., vitamin complex.
(d) Y is a group of several vitamins.

18. Refer to the given flow chart.



Identify X, Y and Z and select the incorrect option regarding them.

- (a) X is formed in leaves of plants during photosynthesis.
(b). Z is essential for the normal functioning of thyroid gland.
(c) Consumption of excess of Y can lead to obesity and heart related problems.
(d) Z helps in formation of haemoglobin in the body.
19. Identify the figures (W - Z) and select the incorrect statement regarding these.



- (a) W is a modified tap root which serves as a storage organ.
(b) Edible part of X is the same as edible part of onion.
(c) Y is a fruit which is eaten as a vegetable.
(d) Edible part of Z is the same as the edible part of potato.

20. Refer to the given dichotomous key and select the correct option.

- I. (A) It is categorised as energy giving food. - Go to II
(B) It is categorised as protective food. - Go to III
II. (A) It is soluble in water. - [P]
(B) It is insoluble in water. - [Q]
III. (A) It is needed for clotting of blood. - [R]
(B) It helps in formation of haemoglobin. - [S]

- (a) Q could be glucose which is instant source of energy.

(b) Deficiency of S causes anaemia characterised by pale body colour, body fatigue etc.
 (c) R causes osteoporosis in adults while S causes goitre in adults.

(d) P occurs in the cell wall of plant cells and in fibres.

Answer key

1. C	2. B	3. A	4. C	5. B
6. B	7. D	8. A	9. B	10. D
11. A	12. B	13. B	14. C	15. B
16. A	17. B	18. C	19. D	20. B

HINTS & EXPLANATIONS

1. (c): A seed contains a tiny embryo inside it that has a part called radicle which gives rise to roots and a part called plumule which gives rise to shoot system i.e. stem, leaves, etc. During sprouting, radicle comes out first.
Hence, the white structures observed are roots because the seeds have sprouted.
These sprouted seeds can be washed and eaten raw as a protein-rich snack.
2. (b) Not Available
3. (a): Plants produce their food by the process of photosynthesis. The extra food material is stored in different parts of plants which become edible. For example, stem of potato and onion, leaves of coriander and cabbage, flower of cauliflower and broccoli and seeds of wheat and corn are the edible parts of the plant.
4. (c): In the given paragraph P, Q, R and S refer to vitamin A, vitamin D, magnesium and vitamin K, respectively. Cod liver oil is a rich source of vitamins A and D.
5. (b): In the given statements, P, Q, R and S refer to iodine, sodium, iron and calcium, respectively. Sodium maintains fluid balance in the body. Sodium is also required for proper nerve functioning.
6. (b) Not Available
7. (d): All the nutrients are required by the body in specific quantities. People who do not get a balanced diet suffer from deficiency diseases. Protein deficiency causes marasmus and kwashiorkor. Deficiency of phosphorus causes weakening of bones, malfunctioning of nervous system, etc.
8. (a): When we take raw egg white in a test tube and add copper sulphate solution and caustic soda to it, then after shaking, the solution in the test tube turns violet in colour. This experiment is done to test the presence of proteins in food items.
9. (b): Lactose is the sugar found in milk. Fat soluble vitamins are stored in the fat tissues of our body and used only when the body needs them, however water soluble vitamins are not stored in our body and need to be regularly supplied through food.
10. (d): We eat roots of radish, turnip, carrot and beetroot. We eat leaves of spinach, cabbage and coriander. We eat stems of potato, sugarcane and onion. However, fruit of mango and flower of broccoli are edible.
11. (a): Kwashiorkor is a deficiency disease caused by deficiency of protein in the diet.
The child suffering from this disease becomes thin and weak. Skin becomes scaly and develops cracks, there is stunted growth and retarded mental development. Other symptoms of the disease include large pot like belly, swelling of feet and ankle, diarrhoea etc.
12. (b): Calcium, potassium and sodium are macrominerals as they are needed by the body in larger amounts whereas iodine is trace mineral as it is needed by the body in very small amount. Vitamin A, D and E are fat-soluble vitamins while vitamin B is water soluble vitamin. Oil is rich in unsaturated fats while cheese, butter and ghee are rich in saturated fats.
13. (b) Not Available
14. (c) Not Available
15. (b): Kwashiorkor is caused by deficiency of protein while marasmus is caused by deficiency of protein, carbohydrate and fat.
16. (a): P is protein, Q is fat, R is carbohydrate and S is vitamin C. Deficiency of proteins causes kwashiorkor whereas marasmus is caused by deficiency of proteins along with carbohydrate. Marasmus occurs in children usually in infants below the age of 1 year and kwashiorkor occurs in children.
17. (b): In the given Venn diagram X, Y and Z represent vitamin D, vitamin E and vitamin K, respectively. Deficiency of vitamin A causes night blindness and deficiency of vitamin C causes scurvy. Pellagra is caused by deficiency of vitamin B_3 . Vitamin B is a group of several vitamins like $B_1, B_2, B_3, B_6, B_{12}$ and folic acid and is known as vitamin; B complex.
18. (c): In the given flow chart, X, Y and Z refer to carbohydrate, vitamin and mineral, respectively.

- 19.** (d): 'W' is the modified fleshy tap root of turnip which stores the reserve food material. 'X' represents garlic /i.e. an underground stem modification. In both garlic and onion, fleshy scales are edible.
Y is tomato, which is a fruit but is eaten as a vegetable. 'Z' represents wheat grains, which are edible seeds but in potato stem is edible.
- 20.** (b): According to the given dichotomous key P, Q, R and S could be glucose, cellulose, calcium and iron respectively. Goitre is caused by deficiency of iodine. Cellulose is complex carbohydrate occurs in the cell wall of plant cells and plant fibres.