

Progress Check

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1. Define malnutrition.**Solution:**

Malnutrition is the condition in which a person suffers due to lack or deficiency of one or more essential elements of food.

**2. Categorise the following items into carbohydrates and proteins:
Cellulose, Starch, Egg albumen, Milk, Pea, Glycogen, Cane-sugar****Solution:**

Listed below is the categorization:

Carbohydrates	Proteins
Cellulose	Egg albumen
Starch	Milk
Glycogen	Pea
Cane- Sugar	

3. What is the approximate requirement of calories for the following:

- (i) An adult physical labourer.
- (ii) An active child of about six years.
- (iii) An adult woman at complete rest.

Solution:

The approximate requirement of calories is as follows:

- (i) An adult physical labourer – 3500 Kcal/day
- (ii) An active child of about six years – 1100 Kcal/day
- (iii) An adult woman at complete rest – 1450 Kcal/day

Review Questions

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A. Multiple Choice Type

1. Which one of the following pairs of nutrients includes both as simple sugars (monosaccharides)?
- (a) Sugar and glucose
 - (b) Glucose and maltose
 - (c) Fructose and glucose
 - (d) Maltose and lactose

Solution:

- (c) Fructose and glucose

Glucose commonly known as grape-sugar and fructose commonly known as fruit sugar are simple sugars.

2. Which one of the following is the correct matching of a nutrient mineral element and its one rich source?
- (a) Calcium - potato
 - (b) Sodium – Citrus fruits
 - (c) Iodine – Dairy milk
 - (d) Potassium – banana

Solution:

- (d) Potassium – banana

Banana is rich in potassium

3. Marasmus is due to deficiency of:
- (a) Vitamin C
 - (b) Carbohydrates, fats and proteins
 - (c) Fat
 - (d) Food

Solution:

- (b) & (c) Carbohydrates, fats and proteins & Fat

Marasmus is caused due to deficiency of carbohydrates, proteins and fats

4. Fat soluble vitamins are:

- (a) A,D and E
- (b) B,C and D
- (c) B,D and E
- (d) A,B and C

Solution:

- (a) A, D, and E.

Vitamins A,D,E are fats soluble and can be stored in the body for a long period of time.

5. Which of the following is the best source of vitamin A:

- (a) Apple

- (b) Honey
- (c) Carrot
- (d) Peanuts

Solution:

- (c) Carrot
- Carrots are rich in Vitamin A

6. Ascorbic acid is Vitamin :

- (a) C
- (b) D
- (c) B
- (d) A

Solution:

- (a) C
- Fresh citrus fruits are a great source of Ascorbic acid rich with Vitamin C.

B. Very short answer type

1. Mention whether the following statements are true(T) or false(F)

- (a) Cellulose in our food passes out undigested **T/F**
- (b) Kwashiorkor is a severe vitamin deficiency disease **T/F**
- (c) Iron is required for the proper working of thyroid **T/F**
- (d) Foods protect us from disease and therefore antibiotics which protect us from disease are also foods. **T/F**
- (e) Mineral salts contribute in regulating body processes. **T/F**

Solution:

- (a) The statement is true
- (b) The statement is false. Kwashiorkor is a severe protein deficiency disease.
- (c) The statement is false. Iodine is required for the proper functioning of thyroid.
- (d) The statement is false. Food protects and provides nourishment to the body and hence is consumed at regular intervals throughout the day. Antibiotics are consumed only when a disease is detected in the body; it cannot be referred to as food.
- (e) The statement is true

2. Name the mineral element that is needed for the following respectively:

- (i) **Strong teeth**
- (ii) **Proper working of thyroid**
- (iii) **Synthesis of haemoglobin**

Solution:

The mineral elements that are required are as follows:

- (i) Strong teeth – Fluorine
- (ii) Proper working of thyroid – Iodine
- (iii) Synthesis of haemoglobin – Iron

3. Name the nutrients whose deficiencies cause the following diseases in humans:

- (i) **Pernicious anemia**

- (ii) **Pellagra**
- (iii) **Night blindness**
- (iv) **Goiter**
- (v) **kwashiorkor**

Solution:

Listed below are the nutrients:

- (i) Pernicious anemia - Vitamin B₁₂
- (ii) Pellagra – Vitamin B₃
- (iii) Night blindness – Vitamin A
- (iv) Goiter – Mineral Iodine
- (v) Kwashiorkor - Proteins

4. **Mark the odd one out in each of the following cases and name the category to which the others belong:**

- (i) **Xerophthalmia, Marasmus, Pellagra, Scurvy.**
- (ii) **Riboflavin, Thiamine, Folic acid, Iodine.**

Solution:

The odd ones out and the category to which others belong are as tabulated below:

Odd ones	Name of the category to which others belong
Marasmus	Rest are vitamin deficiency diseases
Iodine	Rest are Vitamins

C. Short Answer Type

1. **Give two examples each of the following and their usefulness, if any, in our body.**

- (i) **Monosaccharides**
- (ii) **Disaccharides**
- (iii) **Polysaccharides**

Solution:

Tabulated below are the examples and uses:

Name of the carbohydrate	Examples	Uses
Monosaccharides	Glucose, fructose	Glucose is used to treat hypoglycemia Fructose is a source of energy for cells
Disaccharides	Sucrose, maltose	Sucrose provides energy to the body to perform physical and mental activities Maltose is an important intermediate in the digestion of starch.
Polysaccharides	Cellulose, glycogen	Cellulose is important in the diet as fiber Glycogen serves as a ready source of glucose for tissues all through the body

2. Define and give one example of a balanced diet.**Solution:**

A balanced diet can be defined as the one which contains all the principal constituents of food in proper quantity. A balanced diet depends on four factors – age, sex, lifestyle and special needs of a person.

Example – a diet is said to be balanced if it contains both macro nutrients – carbohydrates, nutrients, fat and micronutrients – vitamins, minerals in a proper proportion.

3. A doctor advises a bone patient to include more of milk and milk products in his everyday food. Why so?**Solution:**

Bones are made of iron and calcium. Milk products and milk are rich in Vitamin A and calcium. The doctor advises his patient to include milk and its products so that the bones and teeth get stronger. Milk inhibits the oxidation of Vitamin A; it contains calcium that aids in blood clotting.

D. Long Answer Type**1. List the six main purposes for which food is required by the body.****Solution:**

Food is required by the body for the following:

- Growth – to build new protoplasm or cells for growth
- Repair – to provide material for the repair of worn-out or injured cells
- Energy – to provide energy required by the body to perform various life processes
- Maintenance – of chemical composition of cells
- Provision of raw material – to manufacture various secretions namely, hormones, enzymes, milk, sweat etc.
- Protection from infection and diseases

2. Why are proteins necessary in our food? Name one protein deficiency disease of young children.**Solution:**

Proteins are large chemical molecules, they are the body building foods. It provides chemical material for the growth and repair of body cells and tissues. During crisis, they also may get oxidized to release energy in the body.

One protein deficiency disease of young children is Kwashiorkor.

3. Taking the examples of whole grain atta, fruit and green leafy vegetables, describe how roughage in our diet is useful.**Solution:**

If a diet is balanced, it includes principal constituents in proper proportions. Cellulose constitutes roughage in the food. Fruits, whole grain flour, green leafy vegetables etc. forms the roughage which is the indigestible portion of the diet. They are particularly rich in roughage which provides the following benefits:

- Enables food to move easily through the intestines and are nutritious.
- It stimulates secretion from the digestive tract
- Helps in the removal of cholesterol and toxins.
- Including adequate roughage in food can prevent constipation as it absorbs water and retains it.
- Along with the intestinal waste, adds to the bulk.
- Causes stool formation and helps in expelling undigested waste food

E. Structured/Application/Skill Type

1. Given below is an incomplete table of vitamins, their rich sources and the related deficiency diseases. Fill in the blanks [(i)-(viii)] with only one suitable word for each.

Vitamin	Rich source	Deficiency disease
(i) _____	Whole grain	Beri-beri
Niacin	Milk	(ii) _____
(iii) _____	(iv) _____	Scurvy
Calciferol	(v) _____	(vi) _____
(vii) _____	Carrot, yellow fruit	(viii) _____

Solution:

Vitamin	Rich source	Deficiency disease
Thiamine	Whole grain	Beri-beri
Niacin	Milk	Pellagra
Ascorbic acid	Citrus fruit	Scurvy
Calciferol	Fish liver oil	Rickets
Retinol	Carrot, yellow fruit	Night blindness

2. Complete the following table by filling the blanks.

Mineral	Function	Rich source
Iodine	_____	_____
_____	Formation of haemoglobin	_____
Calcium	_____	_____
Potassium	_____	_____

Solution:

Mineral	Function	Rich source
Iodine	Facilitates the secretion of thyroxin hormone by the thyroid gland	Iodized salt, water, sea foods
Iron	Formation of haemoglobin	Whole cereals, fish, nut, egg yolk, liver, kidney

Calcium	Constituents of enamel, bones. Required for blood clotting, muscle contraction	Dairy food, beans, cabbage
Potassium	Nerve and muscle activity, fluid balance, secretion of neurotransmitter	Banana, potato, citrus fruit

