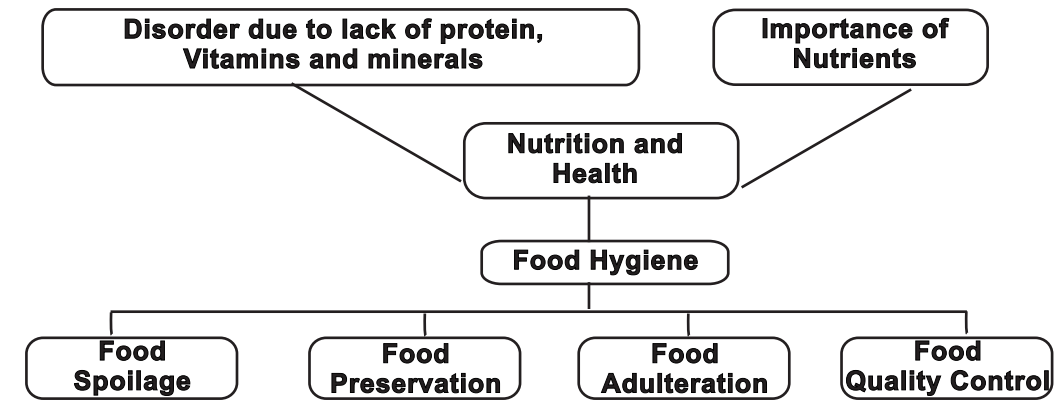


UNIT - 21. Nutrition and Health

MIND MAP



TEXT BOOK EXERCISES

I. Choose the correct answer

1. The nutrient required in trace amounts to accomplish various body functions is

- a) carbohydrate b) protein c) vitamin d) fat **Ans : c) vitamin**

2. The Physician who discovered that scurvy can be cured by ingestion of citrus fruits is

- a) James Lind b) Louis Pasteur c) Charles Darwin d) Isaac Newton
Ans : a) James Lind

3. The sprouting of onion and potatoes can be delayed by the process of

- a) freezing b) irradiation c) salting d) canning
Ans : b) Irradiation

4. Food and Adulteration Act was enforced by Government of India in the year

- a) 1964 b) 1954 c) 1950 d) 1963 **Ans : b) 1954**

5. An internal factor responsible for spoilage of food is

- a) Wax coating b) Contaminated utensils c) Moisture content in food
d) Synthetic preservatives

Ans : c) Moisture content in food

II. Fill in the blanks

1. Deficiency diseases can be prevented by taking diet.

Ans : balanced

2. The process of affecting the natural composition and the quality of food substance is known as

Ans : adulteration

3. Vitamin D is called as vitamin as it can be synthesised by the body from the rays of sun light.

Ans : sunshine

4. Dehydration is based on the principle of removal of

Ans : water / moisture

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5. Food should not be purchased beyond the date of..... **Ans : expiry**

6. AGMARK is used to certify..... and products in India.

Ans : Agriculture , Livestock**III. State whether true or false. If false, correct the statement**

1. Iron is required for the proper functioning of thyroid gland.

Ans : False**Correct Statement : Iodine** is required for the proper functioning of thyroid gland.2. Vitamins are required in large quantities for normal functioning of the body. **Ans : False****Correct Statement : Vitamins** are required in **Minute** quantities for normal functioning of the body.

3. Vitamin C is a water soluble Vitamin

Ans : True

4. Lack of adequate fats in diet may result in low body weight

Ans : True

5. ISI mark is mandatory to certify agricultural products.

Ans : False**Correct Statement : AGMARK** mark is mandatory to certify agricultural products.**IV) Match the following**

Column A	Column B
1. Calcium	a. Muscular fatigue
2. Sodium	b. Anaemia
3. Potassium	c. Osteoporosis
4. Iron	d. Goitre
5. Iodine	e. Muscular cramps

Ans :

Column A	Column B
1. Calcium	c. Osteoporosis
2. Sodium	e. Muscular cramps
3. Potassium	a. Muscular fatigue
4. Iron	b. Anaemia
5. Iodine	d. Goitre

V) Fill in the blanks with suitable answers

Vitamins	Dietary Source	Deficiency disease
Calciferol		Rickets
	Papaya	Night blindness
Ascorbic acid		
	Whole grains	Beriberi

Ans :

Vitamins	Dietary Source	Deficiency disease
Calciferol	<u>Dairy Products</u>	Rickets
<u>Retinol</u>	Papaya	Night blindness
Ascorbic acid	<u>Citrus fruits</u>	<u>Scurvy</u>
<u>Thiamine</u>	Whole grains	Beriberi

VI) Give abbreviations for the following.

- i. ISI ii. FPO iii. AGMARK iv. FCI v. FSSAI

i. ISI - Indian Standards Institution

ii. FPO - Fruit Process Order

iii. AGMARK - Agricultural Marking

iv. FCI - Food Corporation of India

v. FSSAI - Food safety and standards Authority of India

VII. Assertion and Reason

Direction : In the following question, a statement of a Assertion is given and a corresponding Reason is given just below it. Of the statements given below, mark the correct answer as:

1. **Assertion :** Haemoglobin contains iron.

Reason : Iron deficiency leads to anaemia.

- (a) If both Assertion and Reason are true and the Reason is the correct explanation of Assertion
 (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion
 (c) If Assertion is true but Reason is false
 (d) If both Assertion and Reason is false

Ans : (d) If both Assertion and Reason is false

2. **Assertion :** AGMARK is a quality control agency.

Reason : ISI is a symbol of quality.

- (a) If both Assertion and Reason are true and the Reason is the correct explanation of Assertion
 (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion
 (c) If Assertion is true but Reason is false
 (d) If both Assertion and Reason is false

Ans : (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion .

VIII. Give reasons for the following statements.

a) Salt is added as a preservative in pickles.....

Ans: Salt removes the moisture content and prevents growth of bacteria. So, Salt is added as a preservative in pickles.

b) We should not eat food items beyond the expiry date.....

Ans: We should not eat food items beyond the expiry date, because it will be adulterated and may lead to serious health issues.

c) Deficiency of calcium in diet leads to poor skeletal growth.....

Ans: Deficiency of calcium in diet leads to poor skeletal growth because calcium is the major constituent of bone.

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IX. Answer briefly.**1. Differentiate****a) Kwashiorkor from Marasmus.****Ans :**

S.No.	Kwashiorkor	Marasmus
1.	It is a condition of severe protein deficiency.	It is due to the diet is poor in Carbohydrates fats and proteins.
2.	It affects children between 1-5 years of age.	It usually affects infants below the age of one year.

b) Macronutrients from micronutrients.**Ans :**

S.No.	Macronutrients	Micronutrients
1.	Nutrients required for the growth and development of the body in large quantities are called Macronutrients.	Nutrients required for the growth and development of the body in small quantities are called Micronutrients.
2.	Eg. Calcium, Phosphorus, Potassium, Sodium and Magnesium.	Eg. Sulfur, Iron, Chlorine, Cobalt, Copper, Zinc, Manganese, Molybdenum, Iodine and Selenium.

2. Why salt is used as preservative in food.**Ans :**

- ★ Addition of salt removes the moisture content in the food by the process of osmosis.
- ★ This prevents the growth of bacteria and reduces the activity of Microbial enzymes.

3. What is an adulterant?

Ans : Adulterants is defined as the addition or subtraction of any substance to or from food, so that the natural composition and the quality of food substance is affected.

4. Name any two naturally occurring toxic substances in food.**Ans :**

- ★ Toxic substances in certain Poisonous mushrooms.
- ★ Prussic acid in seeds of apples and cherry.

5. What factors are required for the absorption of Vitamin D from the food by the body?

Ans : 1) Sunlight 2) Dehydro Cholesterol.

6. Write any one function of the following minerals.

a) Calcium b) Sodium c) Iron d) Iodine

Ans :

Sl.no	Minerals	Functions
a)	Calcium	Constituent of bones
b)	Sodium	Maintains fluid balance
c)	Iron	Important component of haemoglobin
d)	Iodine	Formation of thyroid hormones

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7. Explain any two methods of food preservation.**Ans : Methods of Food Preservation:****a) Freezing:**

★ It is one of the widely used methods of food preservation.

★ This process involves storing the food below 0°C at which micro organisms cannot grow, chemical reactions are reduced and Metabolic reactions are also delayed.

b) Addition of sugar:

★ Sugar/Honey is added as a preservative to increase the shelf life of fruits and fruit products like jams, jellies, squash, etc.

★ The hygroscopic nature of sugar/honey helps in reducing the water content of food and also minimizing the process of oxidation in fruits.

8. What are the effects of consuming adulterated food?**Ans : Effects of consuming adulterated food:**

Consumption of these adulterated foods may lead to serious health effects like,

- 1) Fever
- 2) Diarrhoea
- 3) Nausea
- 4) Vomiting
- 5) Gastrointestinal disorders
- 6) Asthma
- 7) Allergy
- 8) Neurological disorder
- 9) Skin allergies
- 10) Immune suppression
- 11) Kidney and liver failure
- 12) Colon cancer
- 13) Birth defects

X. Answer in detail.**1. How are vitamins useful to us? Tabulate the sources, deficiency diseases and symptoms of fat soluble vitamins.****Ans : a) Vitamin :** Vitamins are vital nutrients required in minute quantities of perform specific physiological and biochemical functions.**b) Fat soluble vitamins :**





Vitamins	Sources	Deficiency disorders	Symptoms
Vitamin A (Retinol)	Carrot, papaya, leafy vegetables, fish liver oil egg yolk, liver, dairy products	Xerophthalmia Nyctalopia (Night blindness)	Dryness of Cornea Unable to see in the night (dim light) Scaly skin
Vitamin D (Calciferol)	Egg, liver, dairy products, Fish, synthesized by the skin in sunlight	Rickets (in children)	Bow legs, defective ribs, development of pigeon chest
Vitamin E (Tocopherol)	Whole wheat, meat, Vegetable oil, milk	Sterility in rats, Reproductive abnormalities	Sterility
Vitamin K (Derivative of Quinone)	Leafy vegetables, Soyabeans, milk	Blood clotting is prevented	Excessive bleeding due to delayed blood clotting

2. Explain the role of food control agencies in India.

Ans : FCI (Food Corporation of India) : was set up in the year 1965 with the following objectives:

- ★ Effective price support operations for safeguarding the interest of farmers.
- ★ Distributing food grains throughout the country.
- ★ Maintaining satisfactory levels of operational and buffer stock of food grains to ensure national security.
- ★ Regulate the market price to provide food grains to consumers at reliable price.

Role of Food control agencies, their standardized mark and role in food safety.

	ISI (Indian Standards Institution) known as Bureau of Indian Standard (BIS)	Certifies industrial products like electrical appliances like switches, wiring cables, water heater, electric motor kitchen appliances etc.
	AGMARK (Agricultural Marking)	Certifies agricultural and livestock products like cereals, essential oils, pulses, honey, butter etc.
	FPO (Fruit Process Order)	Certifies the fruit products like juice, jams, sauce, canned fruits and vegetables, pickles etc.,
	Fssai (Food Safety and Standards Authority of India)	Responsible for protecting and promoting the public health through regulation and supervision of food safety.

XI. Higher Order Thinking Skills.

1. Look at the picture and answer the question that follows

a) Name the process involved in the given picture.

Ans : Pasteurization of milk

b) Which dairy food is preserved by this process?

Ans : Milk

c) What is the temperature required for the above process?

Ans : 63°C



2. The doctor advises an adolescent girl who is suffering from anaemia to include more of leafy vegetables and dates in her diet. Why so?

Ans :

- ★ Anaemia is a condition resulting from deficiency of haemoglobin in the blood
- ★ Iron is necessary for the formation of a haemoglobin.
- ★ Therefore the doctor advises the girl to include leafy vegetables and dates in her diet since they are rich in iron content.

3. Sanjana wants to buy a jam bottle in a grocery shop. What are the things she should observe on the label before purchasing it?

Ans :

- 1) Standardized marks like ISI, FPO
- 2) Date of manufacture
- 3) Date of expiry
- 4) Contents / Ingredients
- 5) Net weight
- 6) Manufacturer's details
- 7) Maximum Retail Price (MRP)

Additional questions & answers

I. Short answers.

1. Write the classes of nutrients.

Ans :

- ★ Carbohydrates, ★ Proteins, ★ Fats, ★ Vitamins, ★ Minerals

2. Define Carbohydrate.

Ans: Carbohydrates are organic compounds composed of carbon, hydrogen and oxygen.

3. Define Proteins.

Ans: Proteins are the essential nutrients and also the building blocks of the body.

4. Define Vitamins.

Ans: Vitamins are the vital nutrients, required in minute quantities to perform specific physiological and biochemical functions.

5. What are minerals.

Ans: Minerals are inorganic substances required as an essential nutrient by organisms to perform various biological functions necessary for life. They are the constituents of teeth, bones, tissues, blood, muscle and nerve cells.

6. Define Drying.

Ans: Drying is the process of preservation of food by removal of water / moisture content in the food.

7. Define pasteurization.

Ans: Pasteurization is a process of heat treatment of liquid food products.
e.g. For preservation of milk and beverages.

8. Natural preservatives - Define.

Ans: Some naturally available materials like salt, sugar and oil are used as food preservatives.

Activity 1:

Let each of the student bring any food packet (jam, juice, pickle, bread, biscuit, etc). Note down the details like name of the product, manufacturer's details, contents/ ingredients, net weight, Maximum Retail Price (MRP), date of manufacture, date of expiry/usage from the date of manufacture and standardized marks (ISI, AGMARK or FPO) printed on the label for each of the item. What is the aim of such practice?

Activity 2:

Some simple techniques used to detect adulterants at home

1. **Milk:** Place a drop of milk on a slanting polished surface. Pure milk flows slowly leaving a trail behind while the milk adulterated with water will flow fast without leaving a trail.
2. **Honey:** Dip a cotton wick in honey and light it with a match stick. Pure honey burns while adulterated honey with sugar solution gives a cracking sound.
3. **Sugar:** Dissolve sugar in water. If chalk powder is added as an adulterant, it will settle down.
4. **Coffee powder:** Sprinkle a few pinches of coffee powder in a glass of water. Coffee powder floats. If it is adulterated with tamarind powder it settles down.
5. **Food grains:** They have visible adulterants like marble, sand grit, stones, etc. These are removed by sorting, hand picking, washing etc.