MCQ

FOOD AND NUTRITION PRINCIPLES OF HUMAN NUTRITION

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FOOD AND NUTRITION
SYLLABUS

UNIT -I Food Sources

1.1 Sources of foods, types, constituents of foods- carbohydrate, protein, fats, oils and their functions.
1.2 Food colours, flavours and natural toxicants.

UNIT -II Nutrition

2.1 Definition of nutrition, nutrients, functions. Nutritional status – Definition, signs of good and poor nutritional status.
2.2 Mal nutrition- Definition, forms, causes and remedy.
2.3 Health –Definition, guidelines for good health, Balanced diet, Food pyramid.
2.4 BMI (Body Mass Index), Obesity: causes complications, treatment and prevention.

UNIT-III Food Poisoning, Adulteration and Food Preservation

3.1 Food poisoning- Sources, causes and remedy. Causes and remedies for acidity, gastritis, indigestion and constipation
3.2 Food adulteration- Types of adulterants- intentional and incidental, Adulterants in different foods- Milk and milk products- vegetable oils and fats-spices-cereals-pulses, detection and prevention.
3.3 Food spoilage, causes of food spoilage, types of Food spoilage
3.4 Food preservation-preservation and processing by heating - sterilization, pasteurization. Food preservation by low temperature method, fermentation.

UNIT-IV Vitamins and Minerals

4.1 Sources, requirement and deficiency diseases of fat soluble vitamins - A, D, E, and K, water soluble vitamins- B1, B2 and B6

4.2 Mineral elements in food-source, function, deficiency diseases and daily requirements of Na, K, Mg, Fe, S and P.

UNIT-V Foods In Relation To Disease

5.1 Food borne illness, bacterial and viral food borne disorder, animal parasites, mycotoxins.

5.2 Deficiency diseases - nutritional anaemia, PEM, IDD, VAD - chemical finding, prevention and treatment.

ONE MARK QUESTIONS

UNIT-I

1. Which nutrient serves as the body's primary source of energy?
a. Protein b. Carbohydrate
c. Fat d. Fiber

2. Which food source provides complete proteins?
a. Lentils b. Eggs
c. Nuts d. Corn

3. What is the main function of fats and oils in the body?
a. Insulation b. Cell structure
c. Energy storage d. Hormone production

4. The book "Food Chemistry" primarily focuses on:
a. Food Processing and Preservation
b. Food Colors and Flavors
c. Constituents of Foods
d. Nutrition Science

5. "The Extraordinary Chemistry for Ordinary Thing" emphasizes:
a. Food Colors and Flavors
b. Food Processing and Preservation
c. Natural Toxicants
d. Nutrition Science

6. "Nutrition Science" primarily deals with:
a. Food Processing
b. Nutrition and Health

c. Food Colors and Flavors
d. Food Chemistry

7. What percentage of the daily diet should carbohydrates ideally constitute?
a. 10-20% b. 30-40%
c. 50-60% d. 70-80%

8. Which of the following is an incomplete protein source?
a. Quinoa b. Tofu
c. Milk d. Lentils

9. Fats and oils are crucial for the absorption of which vitamins?
a. Vitamin A b. Vitamin C
c. Vitamin D d. Vitamin K

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c. Vitamin D d. Vitamin K

15. Which natural toxicant is commonly found in certain mushrooms and can cause severe poisoning?
a. Aflatoxin b. Cyanide
c. Saponin d. Amatoxin

16. Which of the following is a simple carbohydrate?
a. Starch b. Fructose
c. Cellulose d. Glycogen

17. What is the primary function of carbohydrates in the body?
a. Providing structural support
b. Energy production
c. Regulation of body temperature
d. Hormone synthesis

18. Which of the following is not a function of proteins?
a. Enzyme production
b. Energy storage
c. Building and repairing tissues

d. Immune function

19. What is the building block of proteins?
a. Monosaccharide
b. Amino acids
c. Nucleotides
d. Fatty acids

20. Which type of fat is usually solid at room temperature?
a. Saturated fats
b. Monounsaturated fats
c. Polyunsaturated fats
d. Trans fats

21. What is the main function of fats in the body?
a. Insulation and protection
b. Quick energy production
c. Cell membrane structure
d. Vitamin absorption

22. Which of the following is an example of a natural food colorant?
a. Tartrazine b. Carmine
c. Indigo Carmine d. Beetroot extract

23. Which compound is responsible for the bitter taste in some foods?
a. Tannins b. Capsaicin
c. Caffeine d. Alkaloids

24. Which of the following macronutrients yields the highest amount of energy per gram?
a. Carbohydrates b. Proteins
c. Fats d. Alcohol

25. Which component of food is necessary for the absorption of fat-soluble vitamins?
a. Carbohydrates b. Proteins
c. Fats d. Minerals

26. Which of the following is a complex carbohydrate?
a. Glucose b. Sucrose
c. Starch d. Fructose

27. What is the primary function of carbohydrates in the body?
a. Providing structural support
b. Energy production
c. Hormone synthesis
d. Facilitating nerve impulses

28. Which enzyme breaks down carbohydrates in the digestive system?
a. Amylase b. Protease
c. Lipase d. Pepsin

29. Which carbohydrate is commonly found in fruits and honey?
a. Glucose b. Sucrose
c. Fructose d. Lactose

30. What polysaccharide acts as a storage form of energy in animals?
a. Cellulose
b. Glycogen
c. Chitin
d. Lignin

31. What are the building blocks of proteins?
a. Amino acids b. Fatty acids
c. Monosaccharide d. Nucleotides

32. Which of the following is not a function of proteins?
a. Enzyme catalysis
b. Energy storage
c. Structural support
d. Transport of molecules

33. What is the condition called when a protein loses its structure and function due to heat or chemical exposure?
a. Hydrolysis b. Denaturation
c. Polymerization d. Oxidation

34. Which food source is high in complete proteins?
a. Lentils b. Quinoa
c. Rice d. Corn

35. Which type of protein deficiency leads to the condition known as kwashiorkor?
a. Insufficient intake
b. Lack of essential amino acids
c. Lack of non-essential amino acids
d. Excessive protein breakdown

36. Which type of fat is considered the healthiest for the heart?
a. Saturated fats
b. Trans fats
c. Monounsaturated fats
d. Polyunsaturated fats

37. What is the primary function of fats in the body?
a. Energy storage
b. Insulation
c. Protection of organs
d. All of the above

38. Which fatty acid is essential and must be obtained from the diet?
a. Linoleic acid b. Stearic acid
c. Oleic acid d. Palmitic acid

39. Which type of fat is usually found in processed and fried foods?
a. Saturated fats b. Unsaturated fats
c. Trans fats d. Omega-3 fats

40. What is the main difference between fats and oils?
a. Fats are solid at room temperature, while oils are liquid.
b. Fats are liquid at room temperature, while oils are solid.
c. Fats and oils are the same in terms of their physical state.
d. Fats are more saturated than oils.

41. Which of the following is a natural food colorant?
a. Allura Red
b. Carmine
c. Sunset Yellow
d. Brilliant Blue

42. What is the role of food flavors in processed foods?
a. Adding nutritional value
b. Enhancing taste and aroma
c. Preserving food quality
d. Reducing allergens

43. Which natural compound is responsible for the spicy taste in chili peppers?
a. Capsaicin
b. Caffeine
c. Tannins
d. Anthocyanins

44. What term describes the natural substances in foods that can be harmful in high concentrations?
a. Nutraceuticals
b. Phytochemicals
c. Bioactive compounds
d. Natural toxicants

45. Which of the following is an example of a natural toxicant found in certain beans?
a. Lycopene
b. Lectin
c. Anthocyanin
d. Flavonoid

ANSWERS:

1.b, 2.b, 3.c, 4.c, 5.a, 6.b, 7.c, 8.d, 9.a, 10.b, 11.b, 12.c, 13.d, 14.a, 15.d, 16.b, 17.b, 18.b, 19.b, 20.a, 21.a, 22.d, 23.a, 24.c, 25.c, 26.c, 27.b, 28.a, 29.c, 30.b, 31.a, 32.b, 33.b, 34.b, 35.b, 36.c, 37.d, 38.a, 39.c, 40.a, 41.b, 42.b, 43.a, 44.d, 45.b

5 MARKS

1. Explain the structural differences between simple and complex carbohydrates?
2. Discuss the process of digestion and absorption of carbohydrates in the human body?
3. Describe the structure of proteins and how their structure relates to their function?
4. Explain the significance of essential and non-essential amino acids in the diet?
4. Discuss protein denaturation and its causes?
5. Elaborate on the effects of denaturation on protein function and how it impacts human health?

10 MARKS

1. Compare and contrast saturated, unsaturated, and trans fats?
2. Evaluate their effects on human health, particularly concerning cardiovascular health, and recommend dietary considerations?
3. Explain the importance of essential fatty acids in the human diet. Discuss their sources, functions, and the potential health implications of their deficiency.
4. Detail the energy-yielding roles of carbohydrates, proteins, and fats in the human body?

5. Discuss the efficiency of each macronutrient in providing energy?
6. Discuss the roles of carbohydrates, proteins, and fats beyond energy provision, emphasizing their structural, regulatory, and protective functions in the body?
7. Describe the sources and mechanisms of natural food colorants and flavors?
8. Explain the concept of natural toxicants in food?

UNIT-II

1. What is the primary purpose of nutrition?
a. Enhancing physical fitness
b. Providing energy for daily activities
c. Maintaining proper health and growth
d. Regulating body temperature

2. Which of the following is a macronutrient?
a. Vitamin C
b. Iron
c. Calcium
d. Carbohydrate

3. Which nutrient primarily helps in tissue repair and growth?
a. Protein
b. Fat
c. Vitamin A
d. Fiber

4. What is the function of minerals in the body?
a. Providing energy
b. Regulating body processes
c. Assisting in digestion
d. Building muscle mass

5. What are signs of good nutritional status?
a. Obesity and fatigue
b. Healthy skin and hair, good energy levels
c. Chronic diseases and weakness
d. Excessive weight loss and low immunity

6. Poor nutritional status can manifest as:
a. Increased stamina
b. Strong immune response
c. Stunted growth in children

d. Improved cognitive functions

7. What is malnutrition?
a. Overconsumption of nutrients
b. Under consumption of nutrients
c. Balanced intake of nutrients
d. Excessive exercise

8. Which is a form of severe acute malnutrition characterized by extreme muscle wasting?
a. Marasmus b. Kwashiorkor
c. Obesity d. Rickets

9. What is the definition of health?
a. Absence of disease
b. Complete physical fitness
c. State of complete physical, mental, and social well-being
d. High immunity

10. Which concept emphasizes a balanced intake of various food groups?
a. Nutritional equilibrium
b. Food balance theory
c. Balanced diet
d. Nutritional symmetry

11. What does BMI stand for?
a. Body Mass Indicator
b. Body Measurement Index
c. Body Mass Index
d. Body Measurement Indicator

12. Obesity is often associated with an increased risk of:
a. Heart disease and diabetes
b. Osteoporosis and anemia
c. Hypertension and migraine
d. Asthma and arthritis

13. How does "Food Processing and Preservation" relate to nutrition?
a. Discusses the impact of food processing on nutrient content
b. Focuses on preserving nutrients in food
c. Explores how food processing affects health
d. Offers remedies for malnutrition through food processing

14. What is the primary purpose of nutrition in the human body?
a. Muscle development
b. Providing energy
c. Regulation of body temperature
d. Enhancing cognitive abilities

15. Which of the following is NOT a macronutrient?
a. Carbohydrate b. Protein
c. Vitamin C d. Fat

16. What are the main functions of carbohydrates in the body?
a. Providing energy and aiding in cell structure
b. Regulating body temperature and protecting organs
c. Supporting muscle growth and repair

d. Aiding in hormone production and enzyme activity

17. Which of these is a sign of good nutritional status?
a. Brittle hair and nails
b. Weight loss
c. Healthy skin and hair
d. Fatigue and weakness

18. Poor nutritional status may lead to:
a. Increased energy levels
b. Improved immune function
c. Growth and development issues
d. Enhanced cognitive abilities

19. What is the primary cause of protein-energy malnutrition (PEM)?
a. Overconsumption of carbohydrates
b. Inadequate intake of protein and/or calories
c. Excessive intake of fats
d. Lack of vitamins

20. Which form of malnutrition is characterized by a deficiency of vitamin C?
a. Rickets b. Scurvy
c. Pellagra d. Beriberi

21. What is the primary purpose of a balanced diet?
a. Weight loss
b. Meeting nutritional needs
c. Enhancing physical appearance
d. Lowering cholesterol levels

22. Which of the following is NOT a guideline for good health?
a. Regular exercise b. Adequate sleep
c. Frequent fasting d. Hydration

23. What does BMI stand for?
a. Body Mass Index
b. Body Measurement Index
c. Basal Metabolic Index
d. Body Movement Indicator

24. Obesity is primarily caused by:
a. Genetics and hormonal factors
b. Excessive protein intake
c. Low carbohydrate consumption
d. Sedentary lifestyle only

ANSWERS:
1.c, 2.d, 3.a, 4.b, 5.b, 6.c, 7.b, 8.a, 9.c, 10.c, 11.c, 12.a, 13.a, 14.b, 15.c, 16.a, 17.c, 18.c, 19.b, 20.b, 21.b, 22.c, 23.a, 24.a

5 MARKS
1. Define nutrition and discuss the significance of nutrients in the human body?
2. Explain the primary functions of macronutrients and micronutrients in maintaining overall health?
3. What is meant by nutritional status?
4. Describe the signs and indicators of good nutritional status and contrast them with signs of poor nutritional status?

5. Explain the implications of poor nutritional status on physical and mental health?
6. Define malnutrition and elaborate on its various forms, such as under nutrition, over nutrition, and micronutrient deficiencies?

10 MARKS

1. Identify and explain the causes of malnutrition prevalent in different regions or demographic groups?
2. Define health and outline the key components of maintaining good health?
3. Discuss the significance of a balanced diet in promoting overall health and preventing nutritional deficiencies?
4. Explain the concept of a balanced diet and its relation to the Food Pyramid?
5. Elaborate on the food groups included in the Food Pyramid and their recommended proportions for a healthy diet
6. Define Body Mass Index (BMI) and discuss its significance in assessing weight status and health?
7. Explain how BMI categories are defined and their relevance in identifying obesity?
8. Outline the causes of obesity, considering genetic, environmental, dietary, and lifestyle factors?
9. Discuss the complications associated with obesity and their impact on overall health?
10. Describe the available treatments and preventive measures for obesity?

UNIT-III

1. Which of the following is a common bacterial source of food poisoning?
a. E. coli
b. Vitamin C
c. Calcium
d. Iron

2. Food poisoning is commonly caused by:
a. Improper food storage
b. Overconsumption of vitamins
c. Eating organic food
d. Lack of exercise

3. What is a common remedy for mild cases of food poisoning?
a. Drinking plenty of water
b. Avoiding fruits
c. Consuming more fatty foods
d. Reducing protein intake

4. Acidity is caused by an excess of:
a. Stomach acid
b. Bile
c. Enzymes
d. Insulin

5. What is a common remedy for gastritis?
a. Eating spicy foods
b. Avoiding vegetables
c. Antacids or proton pump inhibitors
d. Drinking coffee

6. Indigestion is often characterized by:
a. Rapid digestion of food
b. Heartburn and bloating

c. Efficient absorption of nutrients
d. Increased energy levels

7. Constipation can be relieved by:
a. Increasing fiber intake and staying hydrated
b. Reducing water consumption
c. Avoiding fruits and vegetables
d. Eating more processed foods

8. Intentional adulteration is done:
a. Accidentally
b. Deliberately
c. Under strict regulations
d. In small quantities

9. Adulteration in milk commonly involves the addition of
a. Water b. Sugar
c. Salt d. Vinegar

10. Which method is commonly used to detect adulteration in vegetable oils and fats?
a. Chromatography b. Spectroscopy
c. Titration d. Dilution

11. What causes food spoilage?
a. Proper storage
b. High humidity
c. Microorganisms, enzymes, and chemical changes
d. Low temperatures

12. Which type of food spoilage is caused by microorganisms like bacteria, yeast, and mold?
a. Chemical spoilage b. Physical spoilage
c. Microbial spoilage d. Enzymatic spoilage

13. What is the process of heating that kills bacteria, yeasts, and molds called?
a. Sterilization b. Fermentation
c. Pasteurization d. Canning

14. Food preservation by low-temperature methods involves:
a. Exposing food to high heat
b. Freezing or refrigeration
c. Adding preservatives
d. Boiling food at a low temperature

15. What are common sources of food poisoning?
a. Microorganisms, chemical contaminants, and allergens
b. Minerals and vitamins
c. Only bacterial contamination
d. Only viral contamination

16. Which bacterium is often responsible for food poisoning from improperly canned foods?
a. Salmonella
b. Clostridium botulinum
c. Escherichia coli (E. coli)
d. Staphylococcus aureus

17. What is the primary cause of acidity?

a. Excessive intake of acidic foods
b. Low stomach acid production
c. High stomach acid production
d. Lack of water intake

18. Gastritis is often caused by:
a. Bacterial infections b. High fiber diet
c. Regular exercise d. Antioxidant-rich foods

19. What are intentional adulterants?
a. Adulterants added unintentionally during processing
b. Adulterants added deliberately to increase profits
c. Natural compounds found in food
d. Preservatives used for food safety

20. Adulteration in milk often involves the addition of:
a. Water b. Sugar
c. Starch d. All of the above

21. What are common causes of food spoilage?
a. Bacterial and viral contamination only
b. Exposure to air and moisture, enzymatic reactions, microbial growth
c. Physical damage to food items
d. Heat exposure during storage

22. Which type of food spoilage is caused by enzymatic breakdown?
a. Microbial spoilage b. Chemical spoilage
c. Physical spoilage d. Enzymatic spoilage
23. Sterilization as a food preservation method involves:
a. High-temperature processing-

b. Low-temperature storage
c. Exposure to sunlight
d. Use of preservatives

24. Food preservation by fermentation primarily involves the action of:
a. Bacteria and yeasts
b. Fungi and molds
c. Enzymes and antioxidants
d. Chemical preservatives

ANSWERS:
1.a, 2.a, 3.a, 4.a, 5.c, 6.b, 7.a, 8.b, 9.a, 10.c, 11.c, 12.c, 13.c, 14.b, 15.a, 16.b, 17.c, 18.a, 19.b, 20.d, 21.b, 22.d, 23.a, 24.a

5 MARKS
1. Discuss the sources of food poisoning and elaborate on the microbial, chemical, and allergen-related causes?
2. Explain the symptoms associated with each source and propose remedies to address food poisoning instances?
3. Explain the causes and factors contributing to acidity, gastritis, indigestion, and constipation?
4. Define and differentiate intentional and incidental adulteration in foods?
5. Explore the types of intentional adulterants found in milk and milk products, vegetable oils and fats, spices, cereals, and pulses?
6. Evaluate the consequences of consuming adulterated food items?

7. Discuss the impact of adulterants on human health and propose strategies to prevent adulteration in the food supply chain?

10 MARKS

1. Identify and elaborate on the primary causes of food spoilage?
2. Discuss the role of physical, chemical, and microbial factors in food deterioration?
3. Illustrate the types of food spoilage and their characteristics?
4. Explain the processes involved in food preservation by heating methods, such as sterilization and pasteurization?
5. Discuss the principles of preserving food using refrigeration, freezing, and cryogenic techniques?
6. Evaluate their advantages and limitations in food preservation?
7. Define fermentation as a method of food preservation?
8. Explain the microbial processes involved in fermentation ?

UNIT-IV

1. Which vitamin is essential for maintaining healthy vision and is found abundantly in carrots?
a. Vitamin A b. Vitamin D
c. Vitamin E d. Vitamin K

2. Vitamin D is primarily synthesized by the body when the skin is exposed to:
a. Sunlight b. Moonlight
c. Starlight d. Artificial light

3. Which fat-soluble vitamin is known for its antioxidant properties?
a. Vitamin A b. Vitamin D
c. Vitamin E d. Vitamin K

4. Vitamin K is essential for:
a. Blood clotting b. Bone health
c. Vision d. Skin health

5. Which vitamin is also known as thiamine?
a. Vitamin B1 b. Vitamin B2
c. Vitamin B6 d. Vitamin B12

6. Riboflavin is another name for which vitamin?
a. Vitamin B1 b. Vitamin B2
c. Vitamin B6 d. Vitamin B12

7. Vitamin B6 is important for:
a. Red blood cell production
b. Skin health
c. Calcium absorption

d. Vision

8. Sodium is primarily found in:
a. Fruits b. Vegetables
c. Salt d. Dairy products

9. Potassium is crucial for:
a. Nerve function and muscle contraction
b. Blood clotting
c. Bone strength
d. Vision

10. Which mineral is essential for the transport of oxygen in the blood?
a. Magnesium b. Iron
c. Sulfur d. Phosphorus

11. Which mineral plays a significant role in energy metabolism and is found in ATP molecules?
a. Sodium b. Potassium
c. Magnesium d. Iron

12. How does "Food Processing and Preservation" relate to fat-soluble vitamins?
a. Discusses the role of vitamins in food processing
b. Emphasizes the preservation of vitamins during processing
c. Analyzes the deficiencies caused by vitamin loss during processing
d. Highlights the impact of food adulteration on vitamins

13. Which vitamin is primarily associated with vision health?
a. Vitamin A b. Vitamin D
c. Vitamin E d. Vitamin K

14. Vitamin D is crucial for:
a. Blood clotting
b. Calcium absorption
c. Wound healing
d. Antioxidant function

15. Vitamin E primarily acts as a(n):
a. Antioxidant
b. Blood clotting factor
c. Bone mineralizer
d Energy producer

16. Which vitamin is essential for blood coagulation?
a. Vitamin A b. Vitamin D
c. Vitamin E d. Vitamin K

17. Which vitamin is also known as thiamine?
a. Vitamin B1 b. Vitamin B2
c. Vitamin B6 d. Vitamin B1

18. Riboflavin is another name for:
a. Vitamin B1 b. Vitamin B2
c. Vitamin B6 d. Vitamin B12

19. Pyridoxine is associated with:
a. Energy metabolism
b. Red blood cell production

c. Collagen synthesis
d. Nerve function

20. Sodium is primarily involved in:
a. Muscle contraction and nerve impulse transmission
b. Blood clotting
c. Oxygen transport
d. Bone formation

21. Potassium deficiency may lead to:
a. Hypertension b. Anemia
c. Osteoporosis d. Muscle weakness

22. Magnesium deficiency is associated with:
a. Rickets b. Osteoporosis
c. Scurvy d. Beriberi

ANSWERS
1.a, 2.a, 3.c, 4.a, 5.a, 6.b, 7.a, 8.c, 9.a, 10.b, 11.c, 12.b, 13.a, 14.b, 15.a, 16.d, 17.a, 18.b, 19.a, 20.a, 21.d, 22.b

5 MARKS
1. Explain the sources, recommended dietary intake, and functions of fat-soluble vitamins - A, D, E, and K?
2. Elaborate on the deficiency diseases associated with each vitamin and propose dietary strategies to prevent deficiencies?
3. Compare and contrast the roles of fat-soluble vitamins (A, D, E, and K) in the human body?
4. Discuss their absorption, storage, and utilization, and evaluate the consequences of excessive intake or deficiency of these vitamins?

5. Discuss the sources, functions, and recommended daily intake of water-soluble vitamins - B1 (thiamine), B2 (riboflavin), and B6 (pyridoxine)?
6. Compare the characteristics and roles of water-soluble vitamins (B1, B2, and B6) in metabolic pathways?

10 MARKS

1. Describe the dietary sources, functions, and daily requirements of sodium (Na) and potassium (K)?
2. Elaborate on the sources, functions, and daily requirements of magnesium (Mg) and iron (Fe) in the human diet?
3. Discuss the consequences of deficiencies in S and P on bone health, cellular function, and overall physiological processes?
4. Investigate the deficiency-related disorders linked with mineral elements such as sodium, potassium, magnesium, iron, sulfur, and phosphorus?

UNIT -V

1. Which bacterium is commonly associated with causing food poisoning from undercooked poultry?
a. E. coli b. Salmonella
c. Staphylococcus aureus d. Botulinum

2. Botulism is caused by:
a. Bacterial infection
b. Viral contamination
c. Toxin produced by bacteria
d. Parasitic infection

3. Which food borne illness is linked to improperly canned foods?
a. Salmonellosis b. Listeriosis
c. Botulism d. Norovirus

4. Norovirus is commonly associated with:
a. Raw eggs
b. Undercooked beef
c. Contaminated water and food
d. Unpasteurized dairy products

5. Mycotoxins are produced by:
a. Bacteria b. Viruses
c. Fungi d. Parasites

6. Aflatoxins, a type of mycotoxin, are commonly found in:
a. Cereals b. Nuts and legumes
c. Dairy products d. Fresh fruits

7. Nutritional anaemia is often caused by a deficiency of:
a. Vitamin D b. Vitamin B12
c. Iron d. Vitamin C

8. What does PEM stand for?
a. Protein Efficiency Measurement
b. Primary Energy Maintenance
c. Protein-Energy Malnutrition
d. Protein Excessive Metabolism

9. Kwashiorkor is a type of:
a. Nutritional anaemia b. Marasmus
c. Pellagra d. Scurvy

10. IDD stands for:
a. Iron Deficiency Disorder
b. Iodine Deficiency Disorder
c. Vitamin A Deficiency
d. Vitamin D Deficiency

11. Vitamin A deficiency can lead to:
a. Night blindness b. Rickets
c. Scurvy d. Beriberi

12. Goiter is associated with a deficiency of:
a. Iron b. Iodine
c. Vitamin C d. Vitamin D

13. Which of the following is a common bacterial cause of food borne illness?
a. Hepatitis A virus b. Norovirus
c. Salmonella d. Rotavirus

14. Food borne illness caused by viruses often results from:
a. Contaminated water
b. Improperly cooked meat
c. Consumption of raw vegetables
d. Contact with infected animals

15. Which parasite is commonly associated with foodborne illnesses transmitted through undercooked pork?
a. Giardia lamblia
b. Trichinella spiralis
c. Entamoeba histolytica
d. Taenia solium

16. Nutritional anaemia is primarily caused by a deficiency in:
a. Vitamin C
b. Vitamin B12
c. Iron
d. Folic acid

17. Protein-Energy Malnutrition (PEM) is characterized by:
a. Excessive intake of proteins
b. intake of carbohydrates
c. Inadequate intake of both proteins and calories
d. Overconsumption of fats

18. Iodine Deficiency Disorder (IDD) primarily affects the functioning of the:
a. Brain and nervous system
b. Cardiovascular system
c. Digestive system

d. Respiratory system

19. Mycotoxins are toxic substances produced by:
a. Bacteria b.Viruses
c. Fungi d. Parasites

20. Which type of mycotoxin is commonly found in improperly stored grains and nuts?
a. Aflatoxin b. Ochratoxin
c. Ergot toxin d. Patulin

21. The prevention of mycotoxin contamination primarily involves:
a. Reducing exposure to sunlight
b. Maintaining proper storage conditions
c. Boiling contaminated foods
d. Freezing contaminated foods

22. The treatment for nutritional anaemia often involves supplementation of:
a. Vitamin C b. Vitamin B6
c. Iron and/or folic acid d. Vitamin D

ANSWERS
1.b, 2.c, 3.c, 4.c, 5.c, 6.b, 7.c, 8.c, 9.b, 10.b, 11.a, 12.b, 13.c, 14.a, 15.b, 16.c, 17.c, 18.a, 19.c, 20.a, 21.b, 22.c

5 MARKS
1. Discuss bacterial and viral food borne disorders, highlighting their modes of transmission, symptoms, and common pathogens involved?

2. Explain preventive measures and treatment strategies for each type of food borne illness?
3. Elaborate on the lifecycle of common parasitic infections transmitted through food, their impact on human health, and propose preventive measures and treatment?
4. Define mycotoxins and their occurrence in food?
5. Explain the sources of mycotoxin contamination, the types commonly found in food, and their effects on human health.
6. Discuss methods for preventing and reducing mycotoxin exposure in food.

10 MARKS

1. Evaluate the significance of mycotoxins in food safety?
2. Elaborate on the factors influencing mycotoxin production, detection methods, regulatory measures?
3. Discuss the chemical findings associated with nutritional anaemia, protein-energy malnutrition (PEM), iodine deficiency disorder (IDD), and vitamin A deficiency (VAD)?
4. Explain the specific nutrients involved, their roles, and the impact of deficiencies on health?
5. Evaluate dietary interventions, supplementation approaches, and public health measures aimed at preventing and reducing the prevalence of these deficiency diseases.
6. Explain the treatment protocols for nutritional anaemia, PEM, IDD, and VAD?

7. Discuss the similarities and differences in managing nutritional anaemia, PEM, IDD, and VAD, emphasizing effective public health measures?
8. Evaluate the role of education and awareness campaigns in mitigating foodborne illnesses and deficiency diseases?

PRINCIPLES OF HUMAN NUTRITION

SYLLABUS

Unit-I

Science of Nutrition, Concept of Nutrition- Definition of nutrition, health, nutritional status and malnutrition.
RDA- Definition, factors affecting RDA and methods used for deriving RDA.
Carbohydrates- Definition ,composition, functions, maintenance of blood sugar levels, requirement, sources, digestion and absorption; Dietary fiber- Definition, classification, physiological effects and sources.

Unit-II

Proteins- Definition, composition, nutritional classification of proteins and amino acids, functions, sources, requirements, digestion and absorption.
Evaluation of protein quality: PER, BV, NPU and Chemical score.
Lipids- Definition, composition, functions, sources, requirements, digestion and absorption. Essential fatty acids – Definition, functions, sources and effects of deficiency.

Unit- III

Energy- Definition, units of measurement, direct and indirect calorimetry; Determination of energy value of food, Total Energy requirement, Factors affecting physical activity, Factors affecting Basal Metabolic Rate, factors affecting Thermic effect of food, Recommended Dietary Allowances and Sources

Unit- IV

Macro Minerals- Calcium and Phosphorous: Functions, requirements, sources and effects of deficiency. Micro minerals- Iron, Iodine, Copper, Fluorine and Zinc: Functions, sources, requirements and effects of deficiency. Sodium and Potassium: Functions, sources, requirements and effects of imbalances.

Unit- V

Fat soluble Vitamins – Vitamin A, D, E and K: Functions, requirements, sources and effects of deficiency. Water Soluble Vitamins – Thiamine, riboflavin, niacin, ascorbic acid, folic acid, vitamin B6 and vitamin B12: Functions, requirements, sources and effects of deficiency.

ONE MARK QUESTIONS

UNIT-I

1. What is the primary definition of nutrition?
a) Exercise routine
b) Process of obtaining and using food by the body
c) Sleep patterns
d) Medication intake

2. Which of the following is NOT a macronutrient?
a) Carbohydrates b) Vitamins
c) Proteins d) Fats

3. What does the term "nutrient" refer to in the context of nutrition?
a) A substance found in food that provides energy
b) Any component of food that promotes growth
c) A chemical substance that the body needs for proper functioning
d) All of the above

4. Which of the following is a micronutrient?
a) Carbohydrates b) Proteins
c) Iron d) Fat

5. Nutrition plays a crucial role in:
a) Only physical health
b) Physical and mental health
c) Only mental health
d) None of the above

6. How is malnutrition defined?

a) Excessive intake of nutrients
b) A state of poor nutrition
c) Optimal balance of nutrients
d) None of the above

7. Nutritional status is influenced by:
a) Genetics
b) Socioeconomic factors
c) Environmental factors
d) All of the above

8. What is the primary goal of nutrition?
a) Weight loss
b) Prevention of diseases
c) Increasing food intake
d) Building muscle mass

9. Health is defined as a state of complete:
a) Absence of diseases
b) Physical well-being only
c) Physical, mental, and social well-being
d) None of the above

10. Which of the following is a measure of nutritional status?
a) Body Mass Index (BMI)
b) Height
c) Blood pressure
d) All of the above

11. What does RDA stand for?
a) Recommended Dieting Approach

b) Required Daily Allowance
c) Recommended Dietary Allowances
d) Regular Diet Assessment

12. RDA represents the:
a) Maximum amount of a nutrient that can be consumed daily
b) Average amount of a nutrient that should be consumed daily
c) Minimum amount of a nutrient that should be consumed daily
d) Irrelevant measure in nutrition

13. Factors affecting RDA include:
a) Age and gender
b) Activity level
c) Pregnancy and lactation
d) All of the above

14. What is the purpose of setting RDAs?
a) To encourage excessive nutrient intake
b) To establish minimum requirements for optimal health
c) To create confusion in dietary guidelines
d) None of the above

15. How are RDAs determined?
a) Based on individual preferences
b) Through extensive scientific research and analysis
c) Randomly assigned values
d) None of the above

16. Which of the following is NOT a method used for deriving RDA?
a) Observational studies b) Controlled experiments
c) Guesswork d) Epidemiological studies

17. In controlled experiments for RDA determination, participants are:
a) Given unlimited access to nutrients
b) Restricted from consuming certain nutrients
c) Allowed to choose their own diets
d) None of the above

18. Observational studies for RDA involve:
a) Manipulating variables in a controlled environment
b) Observing nutrient intake in a real-world setting
c) Using guesswork to estimate nutrient needs
d) None of the above

19. Epidemiological studies for RDA focus on:
a) Isolating individual nutrient effects
b) Studying patterns of nutrient intake and health outcomes in populations
c) Ignoring the role of diet in health
d) None of the above

20. Why is it important to use multiple methods for deriving RDAs?
a) To confuse the public
b) To ensure accuracy and reliability
c) To reduce scientific rigor
d) None of the above

21. What is the role of carbohydrates in nutrition?
a) Provide energy
b) Build muscle
c) Regulate body temperature
d) All of the above

22. Which vitamin is synthesized by the body when exposed to sunlight?
a) Vitamin A b) Vitamin C
c) Vitamin D d) Vitamin K

23. Which mineral is important for the formation of healthy bones and teeth?
a) Iron b) Calcium
c) Zinc d) Potassium

24. What is the main function of proteins in the body?
a) Provide energy
b) Support growth and repair of tissues
c) Regulate body temperature
d) All of the above

25. Which of the following is a water-soluble vitamin?
a) Vitamin A b) Vitamin C
c) Vitamin D d) Vitamin K

26. What is the significance of fiber in the diet?
a) Provides essential nutrients
b) Promotes digestion and regular bowel movements
c) Boosts energy levels
d) None of the above

27. Which of the following is a source of omega-3 fatty acids?
a) Olive oil
b) Avocado
c) Fatty fish (e.g., salmon)
d) Coconut oil

28. What is the primary source of energy for the body?
a) Proteins b) Fats
c) Carbohydrates d) Vitamins

29. What is the role of antioxidants in nutrition?
a) Promote inflammation
b) Neutralize harmful free radicals
c) Induce allergies
d) None of the above

30. In which food group would you find a good source of iron?
a) Fruits b) Vegetables
c) Grains d) Meat and legumes

31. What is the definition of nutrition?
a) The study of food processing
b) The process of food digestion
c) The science of nutrients and their functions in the body
d) The study of food production methods

32. How is health commonly defined in relation to nutrition?
a) Absence of diseases only

b) State of physical, mental, and social well-being
c) Physical fitness only
d) Mental clarity only

33. What does RDA stand for in nutrition?
a) Recommended Dietary Allowance
b) Required Dietetic Assessment
c) Recommended Digestive Allocation
d) Required Digestive Assessment

34. What factors can affect an individual's RDA (Recommended Dietary Allowance)?
a) Age, gender, and activity level
b) Blood type and hair color
c) Eye color and shoe size
d) Favorite food choices

35. How are RDAs derived?
a) Based on individual preferences
b) Through population-based studies and scientific research
c) By personal dietary assessments
d) Using food advertisements

36. What is the primary function of carbohydrates in the body?
a) Providing energy
b) Building muscle mass
c) Regulating body temperature
d) Enhancing brain function

37. What are the sources of dietary fiber?

a) Fruits, vegetables, and whole grains
b) Meat and dairy products
c) Processed foods and sugary snacks
d) Eggs and nuts

38. What is the role of dietary fiber in the body?
a) Aids in digestion and prevents constipation
b) Increases blood cholesterol levels
c) Reduces the risk of diabetes
d) Lowers blood pressure

39. How are carbohydrates digested and absorbed in the body?
a) Mainly in the stomach
b) Primarily in the small intestine
c) Only in the large intestine
d) Not digested; pass through the body unchanged

40. What are the physiological effects of dietary fiber?
a) Increases blood sugar levels
b) Promotes weight gain
c) Improves bowel movements and aids in digestion
d) Reduces nutrient absorption

ANSWERS

1.b, 2.b, 3.d, 4.c, 5.b, 6.b, 7.d, 8.b, 9.c, 10.d, 11.c, 12.b, 13.d, 14.b, 15.b, 16.c, 17.b, 18.b, 19.b, 20.b, 21.a, 22.c, 23.b, 24.b, 25.b, 26.b, 27.c, 28.c, 29.b, 30.d, 31.c, 32.b, 33.a, 34.a, 35.b, 36.a, 37.a, 38.a, 39.b, 40.c

5 MARKS

1. Write a note on science and concept of nutrition?
2. Define health among various aspects?
3. Explain the factors that affect RDA?
4. Classify carbohydrates?
5. Give the requirements and sources of carbohydrates?
6. Write short notes of absorption and digestion of carbohydrates?
7. What do you understand by the term Glycemic Index?
8. Define and classify dietary fibre?
9. Classify foods based of GI?

10 MARKS

1. Define the following:-
   a) Nutrition
   b) Nutrients
   c) Health
   d) Nutritional status
   e) Malnutrition
2. List and explain methods used for deriving RDA?
3. Write the recommended dietary allowances?
4. Define and explain carbohydrates in terms of its functions?
5. How hormones are involved in maintaining the blood sugar level. Give your view?
6. What are the physiological effects of dietary fibre?

UNIT-II

1. What is the primary function of proteins in the body?
a) Provide energy
b) Support growth and repair of tissues
c) Regulate body temperature
d) All of the above

2. Which of the following is a macronutrient?
a) Vitamins b) Minerals
c) Proteins d) None of the above

3. How are proteins classified nutritionally?
a) Simple and complex
b) Animal and plant-based
c) Complete and incomplete
d) Sweet and savory

4. What are amino acids?
a) Building blocks of carbohydrates
b) Building blocks of proteins
c) Building blocks f fats
d) None of the above

5. Essential amino acids are those that:
a) Are found in large quantities in the body
b) Must be obtained from the diet
c) Are non-essential for body functions
d) None of the above

6. What is the main function of proteins in the body?
a) Energy storage

b) Structural support
c) Electrolyte balance
d) Blood clotting

7. Which food source is rich in complete proteins?
a) Lentils b) Quinoa
c) Eggs d) Nuts

8. How is protein requirement affected during periods of rapid growth, such as adolescence?
a) Decreased requirement
b) Increased requirement
c) No change in requirement
d) Dependency on carbohydrate intake

9. Where does the digestion of proteins primarily begin?
a) Mouth b) Stomach
c) Small intestine d) Liver

10. What is the end product of protein digestion?
a) Amino acids b) Glucose
c) Fatty acids d) Glycogen

11. What does PER stand for in the context of protein quality evaluation?
a) Protein Energy Ratio
b) Protein Efficiency Ratio
c) Protein Essential Requirement
d) Protein Evaluation Rating

12. What does BV stand for in protein quality evaluation?

a) Biological Value
b) Biochemical Variation
c) Body Vitality
d) Basic Value

13. What is NPU a measure of in protein quality evaluation?
a) Nutrient Processing Unit
b) Nutrient Provision Utilization
c) Net Protein Utilization
d) Non-Protein Uptake

14. How is the chemical score calculated for protein quality evaluation?
a) Ratio of essential amino acids to total amino acids
b) Ratio of total amino acids to essential amino acids
c) Ratio of fats to proteins
d) None of the above

15. Which of the following is considered a high-quality protein based on its PER?
a) PER = 1.0 b) PER = 2.5
c) PER = 0.7 d) PER = 0.5

16. What is the primary function of lipids in the body?
a) Provide energy b) Structural support
c) Blood clotting d) Electrolyte balance

17. Which of the following is a type of lipid?
a) Vitamin C b) Glucose
c) Cholesterol d) Iron

18. What is the composition of lipids?
a) Amino acids
b) Glycerol and fatty acids
c) Monosaccharide's
d) Nucleotides

19. Where are lipids primarily stored in the body?
a) Liver b) Muscle
c) Adipose tissue d) Kidneys

20. Which food source is rich in saturated fats?
a) Olive oil b) Avocado
c) Butter d) Nuts

21. How are lipids transported in the bloodstream?
a) Dissolved in water
b) As lipoproteins
c) As free fatty acids
d) As amino acids

22. What is the role of bile in lipid digestion?
a) Breaks down lipids into fatty acids
b) Emulsifies lipids to aid digestion
c) Converts lipids into glucose
d) None of the above

23. Where does the majority of lipid digestion occur?
a) Mouth b) Stomach
c) Small intestine d) Large intestine

24. What is the primary end product of lipid digestion?
a) Fatty acids and glycerol

b) Glucose
c) Amino acids
d) Nucleic acids

25. How are lipids absorbed in the small intestine?
a) As intact triglycerides
b) As free fatty acids and monoglycerides
c) As amino acids
d) As glucose

26. What are essential fatty acids?
a) Fats that is crucial for taste
b) Fats that the body can synthesize
c) Fats that must be obtained from the diet
d) None of the above

27. Which of the following is an example of an omega-3 fatty acid?
a) Linoleum acid
b) Oleic acid
c) Alpha-linolenic acid
d) Palmitic acid

28. What is the function of essential fatty acids in the body?
a) Provide energy
b) Regulate body temperature
c) Structural component of cell membranes
d) None of the above

29. Which food source is a good dietary source of omega-3 fatty acids?

a) Olive oil b) Flaxseeds
c) Butter d) Cheese

30. What are the effects of a deficiency of essential fatty acids?
a) Dry skin and impaired growth
b) Increased energy levels
c) Improved cognitive function
d) None of the above

31. How do proteins contribute to the immune system?
a) By providing energy
b) By acting as antibodies
c) By regulating body temperature
d) All of the above

32. Which amino acid is considered essential in the diet for infants?
a) Histidine b) Glutamine
c) Tyrosine d) Cysteine

33. What is the primary function of collagen, a structural protein in the body?
a) Energy storage
b) Blood clotting
c) Structural support for skin, bones, and connective tissues
d) Electrolyte balance

34. Which of the following is an example of a complete protein?
a) Rice b) Lentils

c) Quinoa d) Corn

35. What is the importance of the Protein Digestibility Corrected Amino Acid Score (PDCAAS) in protein quality assessment?
a) It measures amino acid composition
b) It considers both amino acid composition and digestibility
c) It only measures digestibility
d) None of the above

36. How does the body obtain non-essential amino acids?
a) From the diet
b) Through synthesis in the body
c) Both a and b
d) None of the above

37. What is the primary function of lipids in cellular membranes?
a) To provide energy
b) To act as structural components
c) To regulate body temperature
d) None of the above

38. Which lipid is known as "good cholesterol"?
a) LDL b) VLDL
c) HDL d) Chylomicrons

39. What is the role of phospholipids in the body?
a) Energy storage
b) Structural components of cell membranes

c) Blood clotting
d) Electrolyte balance

40. How are triglycerides transported in the bloodstream?
a) As chylomicrons b) As HDL
c) As LDL d) As VLDL

41. Which of the following is a function of phospholipids?
a) Energy storage
b) Hormone synthesis
c) Cell membrane structure
d) Oxygen transport in the blood

42. What is the role of bile in lipid digestion?
a) Emulsification of lipids
b) Breakdown of lipids into fatty acids
c) Conversion of lipids into glucose
d) None of the above

43. What is the primary function of proteins in the body?
a) Energy storage
b) Muscle contraction
c) Maintaining blood sugar levels
d) Synthesis of DNA

44. Which nutritional classification indicates proteins containing all essential amino acids in adequate amounts?
a) Complete proteins

b) Incomplete proteins
c) Simple proteins
d) Complex proteins

45. What are the sources of complete proteins?
a) Grains and legumes
b) Nuts and seeds
c) Animal products like meat, eggs, and dairy
d) Fruits and vegetables

46. What are the nutritional classifications of amino acids?
a) Essential, non-essential, and conditional
b) Sweet, sour, and bitter
c) Simple and complex
d) Hydrophobic and hydrophilic

47. How are proteins digested in the body?
a) Mainly in the mouth
b) Primarily in the stomach
c) Mainly in the small intestine
d) Not digested; absorbed directly into the bloodstream

48 .What does PER stand for in evaluating protein quality?
a) Protein Energy Ratio
b) Protein Efficiency Ratio
c) Protein Enzyme Ratio
d) Protein Essentiality Ratio

49. Which parameter measures the ability of a protein to support growth in an animal model?

a) Biological Value (BV)
b) Net Protein Utilization (NPU)
c) Chemical Score
d) Protein Efficiency Ratio (PER)

50. What is the measure of protein quality that considers digestibility and amino acid composition?
a) Biological Value (BV)
b) Net Protein Utilization (NPU)
c) Protein Efficiency Ratio (PER)
d) Chemical Score

51. Which parameter expresses the proportion of absorbed protein to the amount of protein consumed?
a) Biological Value (BV)
b) Net Protein Utilization (NPU)
c) Protein Efficiency Ratio (PER)
d) Chemical Score

52. Which protein evaluation method measures the amount of essential amino acids in a protein compared to a reference protein?
a) Protein Efficiency Ratio (PER)
b) Biological Value (BV)
c) Net Protein Utilization (NPU)
d) Chemical Score

53. What is the primary function of lipids in the body?
a) Source of quick energy
b) Structural component of cell membranes
c) Regulation of body temperature
d) Carrying oxygen in the blood

54. What are the main sources of lipids in the diet?
a) Fruits and vegetables
b) Meat and dairy products
c) Legumes and grains
d) Nuts and seeds

55. What are essential fatty acids?
a) Fats that is essential for cooking
b) Fats that cannot be synthesized by the body and must be obtained from the diet
c) Fats that is harmful to health
d) Fats present in processed foods

56. What are the functions of essential fatty acids in the body?
a) Regulating body temperature
b) Supporting brain health and reducing inflammation
c) Maintaining blood sugar levels
d) Enhancing muscle strength

57. What are the consequences of a deficiency in essential fatty acids?
a) Reduced energy levels
b) Increased risk of heart disease and impaired growth
c) Enhanced immune function
d) Improved brain function

58. Which of the following is NOT a function of proteins in the body?
a) Building and repairing tissues
b) Acting as an energy reserve
c) Enzyme production for chemical reactions

d) Supporting immune function

59. What are the building blocks of proteins?
a) Monosaccharides b) Amino acids
c) Fatty acids d) Disaccharides

60. Which type of amino acid must be obtained through the diet because the body cannot produce it?
a) Essential amino acids
b) Non-essential amino acids

61. Which of the following is a good source of complex carbohydrates?
a) Soda b) White bread
c) Brown rice d) Candy

62. What happens when carbohydrates are consumed but not utilized by the body for energy?
a) They are converted to proteins
b) They are stored as glycogen in the liver and muscles
c) They are converted to vitamins
d) They are excreted unchanged

ANSWERS
1.b, 2.b, 3.b, 4.c, 5.b, 6.c, 7.c, 8.c, 9.b, 10.b, 11.b, 12.c, 13.b, 14.a, 15.b, 16.b, 17.c, 18.b, 19.c, 20.b, 21.b, 22.a, 23.d, 24.a, 25.d, 26.c, 27.b, 28.a, 29.b, 30.c, 31.d, 32.b, 33.d, 34.a, 35.b, 36.c, 37.c, 38.a, 39.b, 40.a, 41.d, 42.b, 43.b, 44.a, 45.a, 46.b, 47.b, 48.a, 49.b, 50.a, 51.a, 52.b, 53.b, 54.b, 55.b, 56.b, 57.b, 58.b, 59.b, 60.b, 61.c, 62.b

5 MARKS

1. Define lipids and elaborate on their composition?
2. Define proteins and elucidate their composition.
3. Classify proteins based on their nutritional significance and discuss the importance of amino acids in protein structure and function?
4. Discuss the dietary sources of lipids and their significance in meeting the body's requirements?
5. Explain the diverse functions of proteins within the human body?

10 MARKS

1. Explain how proteins contribute to bodily processes such as enzymatic activity, structural support, and immune function?
2. Describe the sources of dietary proteins and their importance in meeting the body's protein requirements..
3. Define essential fatty acids and elucidate their functions within the body?
4. Explain the process of digestion and absorption of proteins in the human digestive system?
5. Evaluate the protein quality using various methods such as PER (Protein Efficiency Ratio), BV (Biological Value), NPU (Net Protein Utilization), and Chemical Score?
6. Explain the diverse functions that lipids serve in the human body?

UNIT-III

1. What is the primary role of energy in the body?
a) Provide structure to cells
b) Facilitate communication between cells
c) Fuel physiological processes
d) None of the above

2. Which unit is commonly used to measure energy in nutrition?
a) Joules b) Watts
c) Newton's d) Volts

3. How many kilocalories are equivalent to 1 kilojoule?
a) 10 b) 100
c) 1,000 d) 10,000

4. In nutrition, what is the commonly used term for kilocalories?
a) Calories b) Kilojoules
c) Grams d) Newton's

5. What is the primary function of a bomb calorimeter?
a) Measure body temperature
b) Determine energy content of food
c) Assess physical activity
d) None of the above

6. What is direct calorimetry?
a) Measurement of energy expenditure using a bomb calorimeter

b) Measurement of heat production directly from the body
c) Measurement of energy content in food
d) None of the above

7. Indirect calorimetry measures energy expenditure based on:
a) Heat production
b) Oxygen consumption and carbon dioxide production
c) Blood pressure
d) None of the above

8. What is the primary advantage of indirect calorimetry?
a) Measures heat production accurately
b) Requires minimal equipment
c) Suitable for all individuals
d) None of the above

9. Calorimetry is used to measure:
a) Body temperature
b) Energy content of food
c) Blood pressure
d) None of the above

10. What information does a bomb calorimeter provide?
a) Oxygen consumption
b) Heat of combustion of a substance
c) Blood pressure
d) None of the above

11. How is the energy value of food determined in a laboratory setting?
a) Indirect calorimetry
b) Bomb calorimetry
c) Direct calorimetry
d) None of the above

12. What is the term for the energy required to raise the temperature of 1 gram of water by 1 degree Celsius?
a) Calorie b) Joule
c) Kilocalorie d) Watt

13. The energy value of food is expressed in:
a) Grams b) Kilojoules
c) Kilocalories d) Newton's

14. How is the energy value of food determined in a bomb calorimeter?
a) By measuring heat of combustion
b) By measuring oxygen consumption
c) By measuring blood pressure
d) None of the above

15. What is the primary limitation of using the bomb calorimeter to determine the energy value of food?
a) Requires specialized equipment
b) Only measures fat content
c) Does not account for digestibility
d) None of the above

16. Total Energy Requirement (TER) includes energy needed for:

a) Basal Metabolic Rate (BMR), Physical Activity, and Thermic Effect of Food (TEF)
b) Only Physical Activity
c) Only Thermic Effect of Food (TEF)
d) None of the above

17. What is the largest component of Total Energy Requirement (TER) in most individuals?
a) Basal Metabolic Rate (BMR)
b) Physical Activity
c) Thermic Effect of Food (TEF)
d) None of the above

18. What is the term for the energy expended at rest to maintain basic physiological functions?
a) Physical Activity
b) Thermic Effect of Food (TEF)
c) Basal Metabolic Rate (BMR)
d) None of the above

19. Total Energy Requirement (TER) varies based on:
a) Gender b) Age
c) Weight d) All of the above

20. What is the primary factor affecting Total Energy Requirement (TER)?
a) Blood pressure
b) Nutrient density
c) Individual variations in physical activity
d) None of the above

21. What is the primary determinant of energy expenditure during physical activity?
a) Duration of activity
b) Intensity of activity
c) Type of activity
d) All of the above

22. Which of the following activities has the highest energy expenditure per unit of time?
a) Walking b) Running
c) Swimming d) None of the above

23. How does the duration of physical activity impact energy expenditure?
a) Longer duration increases energy expenditure
b) Shorter duration increases energy expenditure
c) Duration has no impact on energy expenditure
d) None of the above

24. What is the term for non-exercise activity thermogenesis (NEAT)?
a) Physical Activity
b) Thermal Effect of Food (TEF)
c) Basal Metabolic Rate (BMR)
d) None of the above

25. How does the type of physical activity influence energy expenditure?
a) Type has no impact on energy expenditure
b) Different types of activity result in different energy expenditures
c) All types of activity have the same energy expenditure

d) None of the above

26. What is the term for the minimum energy expended to maintain basic physiological functions during complete rest?
a) Physical Activity
b) Thermal Effect of Food (TEF)
c) Basal Metabolic Rate (BMR)
d) None of the above

27. Factors affecting Basal Metabolic Rate (BMR) include:
a) Age and gender
b) Body size and composition
c) Hormonal status
d) All of the above

28. How does age affect Basal Metabolic Rate (BMR)?
a) BMR increases with age
b) BMR decreases with age
c) Age has no impact on BMR
d) None of the above

29. Which factor contributes significantly to individual variations in Basal Metabolic Rate (BMR)?
a) Blood pressure
b) Nutrient density
c) Lean body mass
d) None of the above

30. How does hormonal status influence Basal Metabolic Rate (BMR)?

a) Hormones have no impact on BMR
b) Certain hormones can increase BMR
c) Hormones decrease BMR
d) None of the above

31. What is the term for the increase in energy expenditure associated with the digestion and absorption of food?
a) Physical Activity
b) Thermal Effect of Food (TEF)
c) Basal Metabolic Rate (BMR)
d) None of the above

32. The Thermal Effect of Food (TEF) is influenced by:
a) Meal composition
b) Meal size
c) Both a and b
d) None of the above

33. Which nutrient has the highest Thermic Effect of Food (TEF)?
a) Carbohydrates
b) Proteins
c) Fats
d) None of the above

34. How does meal size impact the Thermic Effect of Food (TEF)?
a) Larger meals result in higher TEF
b Smaller meals result in higher TEF
c) Meal size has no impact on TEF
d) None of the above

35. What is the significance of the composition of a meal in relation to Thermic Effect of Food (TEF)?
a) Composition has no impact on TEF
b) Protein-rich meals have a higher TEF
c) Fat-rich meals have a higher TEF
d) None of the above

36. What does RDA stand for in nutrition?
a) Recommended Daily Allowance
b) Recommended Dietary Allowance
c) Required Dietary Allowance
d) None of the above

37. RDAs are established to:
a) Prevent nutrient deficiencies
b) Promote optimal health
c) Both a and b
d) None of the above

38. How are RDAs determined?
a) Based on the average requirement of a population
b) Based on individual variations
c) Both a and b
d) None of the above

39. RDAs are established for:
a) All nutrients
b) Only macronutrients
c) Only micronutrients
d) None of the above

40. What is the primary source of information used to establish RDAs?
a) Experimental studies
b) Observational studies
c) Expert opinions
d) None of the above

41. What is the definition of energy in nutrition?
a) The capacity to do work
b) The heat released during digestion
c) The speed of metabolic reactions
d) The amount of water intake

42. Which unit is commonly used to measure energy in nutrition?
a) Joule (J) b) Watt (W)
c) Calorie (cal) d) Newton (N)

43. What is direct calorimetry used to measure?
a) Energy expenditure through oxygen consumption
b) Heat produced by the body
c) Physical activity levels
d) Thermic effect of food

44. How is the energy value of food determined?
a) By measuring the energy expenditure during physical activity
b) Through analysis of macronutrient content using a bomb calorimeter
c) By measuring the heat production after eating
d) By assessing the micronutrient content of food

45. What is the total energy requirement for an individual?
a) The energy needed for basal metabolic rate only
b) The energy needed for physical activity and digestion only
c) The sum of energy needed for basal metabolic rate, physical activity, digestion, and thermic effect of food
d) The energy needed for physical growth and repair

46. What factors affect physical activity in individuals?
a) Age and gender only
b) Occupation and environmental factors only
c) Age, gender, occupation, environmental factors, and leisure activities
d) Age and occupation only

47. Which factor primarily affects Basal Metabolic Rate (BMR)?
a) Age
b) Gender
c) Physical activity level
d) Environmental factors

48. What is the Thermic Effect of Food (TEF)?
a) The heat produced during physical activity
b) The heat produced during digestion, absorption, and metabolism of nutrients
c) The heat released by the body at rest
d) The energy required for growth and repair

49. How do Recommended Dietary Allowances (RDAs) relate to energy intake?

a) They specify the maximum energy intake for an individual
b) They indicate the minimum energy intake required for optimal health
c) They vary according to age but are independent of gender and physical activity levels
d) They focus solely on macronutrient distribution

50. Where do sources for energy expenditure come from?
a) Solely from dietary fat intake
b) Only from carbohydrate intake
c) From the breakdown of carbohydrates, fats, and proteins
d) Primarily from protein intake

51. Which of the following is the fundamental unit of energy?
a) Watt b) Joule
c) Volt d) Newton

52. What is the primary source of energy for living organisms?
a) Solar energy b) Wind energy
c) Fossil fuels d) Nuclear energy

53. Which law of thermodynamics states that energy cannot be created or destroyed, only transformed or transferred?
a) Zeroth law b) First law
c) Second law d) Third law

54. What type of energy is stored in the food we consume?
a) Kinetic energy b) Potential energy
c) Chemical energy d) Mechanical energy

55. What is the process by which green plants convert light energy into chemical energy?
a) Photosynthesis b) Respiration
c) Combustion d) Oxidation

56. Which form of energy is associated with the motion of objects?
a) Thermal energy b) Potential energy
c) Kinetic energy d) Nuclear energy

57. What is the term used to describe the total amount of potential and kinetic energy in a system?
a) Mechanical energy b) Radiant energy
c) Electrical energy d) Gravitational energy

58. Which energy transformation occurs when a battery-operated fan is turned on?
a) Electrical to mechanical
b) Mechanical to electrical
c) Mechanical to thermal
d) Thermal to mechanical

59. Which source of renewable energy harnesses the movement of water to generate electricity?
a) Solar power
b) Geothermal energy
c) Hydroelectric power

d) Biomass energy

60. What is the unit used to measure electrical energy consumption in homes?

a) Watts b) Volts

c) Kilowatt-hours d) Amperes

ANSWERS

1.c, 2.a, 3.c, 4.a, 5.b, 6.b, 7.b, 8.b, 9.b, 10.b, 11.b, 12.a, 13.c, 14.a, 15.c, 16.a, 17.a, 18.c, 19.d, 20.c, 21.d, 22.b, 23.a, 24.a, 25.b, 26.c, 27.d, 28.b, 29.c, 30.b, 31.b, 32.c, 33.b, 34.a, 35.b, 36.b, 37.c, 38.a, 39.a, 40.a, 41.a, 42.c, 43.b, 44.b, 45.c, 46.c, 47.b, 48.b, 49.b, 50.c, 51.b, 52.a, 53.b, 54.c, 55.a, 56.c, 57.a, 58.a, 59.c, 60.c

5 MARKS

1. Define energy in the context of nutrition and explain the units used to measure energy?
2. Discuss the concepts of direct and indirect calorimetry and their applications in measuring energy expenditure?
3. Elaborate on the methods used to determine the energy value of food?
4. Discuss the principles behind bomb calorimetry and how it helps in quantifying the energy content of different macronutrients?
5. Define Total Energy Requirement (TER) and discuss the factors influencing it?
6. Explain the components of TER and how individual variations in factors like age, gender, and physical activity levels affect overall energy needs?

10 MARKS

1. Analyze the factors affecting physical activity and their impact on energy expenditure?
2. Explore the factors influencing Basal Metabolic Rate (BMR) and its significance in determining energy needs?
3. Explain the Thermic Effect of Food (TEF) and outline the factors that affect it?
4. Discuss the significance of meal composition and size in influencing the energy expended during the digestion, absorption, and metabolism of food?
5. Describe the Recommended Dietary Allowances (RDA) and their significance in maintaining optimal nutrient intake?
6. Discuss how RDAs are established for different nutrients and the sources from which these recommendations are derived?
7. Evaluate the importance of meeting RDA for various nutrients in maintaining overall health and preventing nutritional deficiencies.
8. Explain the consequences of both inadequate and excessive nutrient intake?

UNIT-IV

1. What is the primary function of calcium in the body?
a) Nerve transmission
b) Blood clotting
c) Muscle contraction and bone formation
d) Oxygen transport

2. Which of the following is a good source of dietary calcium?
a) Red meat
b) Dairy products
c) Citrus fruits
d) Leafy green vegetables

3. What is the primary function of phosphorus in the body?
a) Regulating blood pressure
b) Energy metabolism and bone formation
c) Immune system function
d) Vision

4. Which food group is a rich source of dietary phosphorus?
a) Fruits b) Grains
c) Protein-rich foods d) Oils and fats

5. What is a potential effect of calcium deficiency in adults?
a) Rickets b) Osteoporosis
c) Scurvy d) Beriberi

6. Which population group is particularly at risk of calcium deficiency?
a) Adolescents
b) Pregnant women
c) Older adults
d) All of the above

7. In addition to bone health, what is another function of phosphorus?
a) Blood clotting
b) Nerve transmission
c) Cellular energy transfer
d) Antioxidant defense

8. Which factor enhances the absorption of calcium in the body?
a) Phytic acid
b) Oxalic acid
c) Vitamin D
d) Caffeine

9. What is the primary function of phosphorus in ATP molecules?
a) Oxygen transport
b) Energy transfer
c) Blood clotting
d) Immune system function

10. What condition is characterized by a deficiency of both calcium and phosphorus?
a) Scurvy
b) Rickets
c) Pellagra
d) Goiter

11. What is the primary function of iron in the body?
a) Bone health
b) Oxygen transport

c) Nerve transmission
d) Blood clotting

12. Which of the following is a good source of heme iron?
a) Legumes b) Fortified cereals
c) Red meat d) Leafy green vegetables

13. What is the primary function of iodine in the body?
a) Energy metabolism
b) Thyroid hormone production
c) Antioxidant defense
d) Blood clotting

14. Which of the following is a good source of dietary iodine?
a) Seafood b) Nuts and seeds
c) Citrus fruits d) Dairy products

15. What is a potential effect of iron deficiency?
a) Night blindness b) Anemia
c) Goiter d) Osteomalacia

16. Which population group is particularly at risk of iron deficiency?
a) Teenagers b) Pregnant women
c) Older adults d) All of the above

17. Copper is involved in the formation of:
a) Hemoglobin b) Thyroid hormones
c) Collagen d) ATP

18. What is the primary function of fluorine in the body?
a) Blood clotting
b) Bone and teeth health
c) Nerve transmission
d) Oxygen transport

19. Which of the following is a good source of dietary copper?
a) Whole grains b) Citrus fruits
c) Red meat d) Oils and fats

20. What is a potential effect of iodine deficiency?
a) Scurvy b) Goiter
c) Osteoporosis d) Night blindness

21. Fluorine is beneficial for:
a) Preventing anemia b) Dental health
c) Energy metabolism d) Blood clotting

22. Which of the following is a good source of dietary fluorine?
a) Dairy products b) Legumes
c) Seafood d) Whole grains

23. Zinc is important for the function of:
a) Insulin b) Hemoglobin
c) Thyroid hormones d) DNA and RNA

24. What is a potential effect of copper deficiency?
a) Anemia b) Goiter
c) Osteoporosis d) Night blindness

25. Which of the following is a good source of dietary zinc?
a) Nuts and seeds b) Whole grains
c) Citrus fruits d) Red meat

26. What is a potential effect of zinc deficiency?
a) Anemia b) Goiter
c) Delayed wound healing d) Osteomalacia

27. Which of the following is a good source of dietary fluorine?
a) Nuts and seeds b) Seafood
c) Red meat d) Oils and fats

28. What is a potential effect of fluoride deficiency?
a) Dental caries b) Anemia
c) Goiter d) Osteoporosis

29. What is the primary function of sodium in the body?
a) Blood clotting
b) Nerve transmission and fluid balance
c) Bone formation
d) Energy metabolism

30. Which of the following is a good source of dietary sodium?
a) Fruits b) Vegetables
c) Processed foods d) Whole grains

31. What is a potential effect of sodium deficiency?
a) Hypertension b) Anemia
c) Osteoporosis d) Hyponatremia

32. What is the primary function of potassium in the body?
a) Blood clotting
b) Nerve transmission and fluid balance
c) Bone formation
d) Energy metabolism

33. Which of the following is a good source of dietary potassium?
a) Dairy products b) Processed foods
c) Red meat d) Fruits and vegetables

34. What is a potential effect of potassium deficiency?
a) Hypertension b) Anemia
c) Osteoporosis d) Hyponatremia

35. Which of the following is a good source of dietary iodine?
a) Nuts and seeds b) Seafood
c) Red meat d) Oils and fats

36. What is a potential effect of iodine deficiency during pregnancy?
a) Rickets b) Goiter
c) Neural tube defects d) Osteoporosis

37. Which of the following is a good source of dietary copper?
a) Nuts and seeds b) Seafood
c) Red meat d) Whole grains

38. What is a potential effect of copper deficiency on blood cells?
a) Anemia b) Leukopenia
c) Thrombocytosis d) Eosinophilia

39. Which of the following is a good source of dietary fluorine?
a) Nuts and seeds b) Seafood
c) Red meat d) Dairy products

40. What is a potential effect of excessive fluoride intake?
a) Dental fluorosis b) Anemia
c) Goiter d) Osteoporosis

41. What is the primary function of calcium in the body?
a) Blood clotting
b) Muscle contraction
c) Nerve transmission
d) Bone and teeth formation

42. What are the sources of calcium?
a) Meat and poultry
b) Dairy products, leafy greens, and fortified foods
c) Nuts and seeds
d) Fish and seafoods

43. What is the primary function of phosphorus in the body?
a) Nerve function
b) Energy metabolism
c) Blood clotting

d) Muscle contraction

44. What are the effects of calcium deficiency?
a) Osteoporosis and weakened bones
b) Anemia
c) Hypertension
d) Dental caries

45. What is the primary function of iron in the body?
a) Oxygen transport in the blood
b) Thyroid hormone synthesis
c) Antioxidant function
d) Nerve transmission

46. Which food sources are rich in iron?
a) Citrus fruits
b) Red meat, beans, and spinach
c) Dairy products
d) Whole grains

47. What is the function of iodine in the body?
a) Regulation of fluid balance
b) Formation of thyroid hormones
c) Maintenance of bone health
d) Blood clotting

4 .Where is iodine commonly found in the diet?
a) Seafood and iodized salt
b) Dairy products
c) Legumes and nuts
d) Fruits and vegetables

49. What is the role of copper in the body?
a) Energy production
b) Formation of hemoglobin
c) Wound healing
d) Bone health

50. What are the effects of zinc deficiency?
a) Hair loss and impaired immune function
b) Anaemia
c) Dental caries
d) Bone disorders

51. What is the function of sodium in the body?
a) Regulation of muscle contraction and nerve transmission
b) Regulation of blood sugar levels
c) Bone and teeth formation
d) Energy metabolism

52. Where is sodium commonly found in the diet?
a) Fresh fruits and vegetables
b) Processed foods and table salt
c) Whole grains
d) Dairy products

53. What is the function of potassium in the body?
a) Regulation of blood pressure and fluid balance
b) Oxygen transport in the blood
c) Maintenance of bone health
d) Muscle contraction

54. Where is potassium commonly found in the diet?

a) Processed foods
b) Red meat
c) Fresh fruits and vegetables
d) Dairy products

ANSWERS

1.c, 2.b, 3.b, 4.c, 5.b, 6.c, 7.c, 8.c, 9.b, 10.b, 11.b, 12.c, 13.b, 14.a, 15.b, 16.b, 17.c, 18.b, 19.c, 20.b, 21.b, 22.a, 23.d, 24.a, 25.d, 26.c, 27.b, 28.a, 29.b, 30.c, 31.d, 32.b, 33.d, 34.a, 35.b, 36.c, 37.c, 38.a, 39.b, 40.a, 41.d, 42.b, 43.b, 44.a, 45.a, 46.b, 47.b, 48.a, 49.b, 50.a, 51.a, 52.b, 53.a, 54.c

5 MARKS

1. Explain the functions of calcium and phosphorus in the human body?
2. Evaluate the consequences of calcium and phosphorus deficiency on overall health?
3. Define the functions of iron, iodine, copper, fluorine, and zinc within the body?
4. Discuss the effects of iron deficiency anaemia on human health?
5. Elaborate on the symptoms and consequences of inadequate iron intake and how it impacts oxygen transport and overall energy levels?

10 MARKS

1. Explain the significance of iodine in thyroid hormone synthesis and its role in preventing iodine deficiency disorders?

2. Discuss the sources of iodine and the implications of iodine deficiency on physical and cognitive development?
3. Analyze the functions and sources of copper and its importance in enzymatic reactions and iron metabolism.
4. Detail the effects of copper deficiency and its impact on immune function and connective tissue health.
5. Discuss the role of fluorine in dental health and its sources in the diet?
6. Explain the consequences of fluorine deficiency and excess intake on dental health and overall well-being?
7. Define the functions of sodium and potassium in the body, particularly their roles in fluid balance, nerve transmission, and muscle function?
8. Describe the functions of zinc in the body, emphasizing its role in immune function, wound healing, and protein synthesis?
9. Discuss the effects of imbalances in sodium and potassium levels on health?

UNIT-V

1. What is the primary function of Vitamin A?
a) Blood clotting
b) Vision and immune function
c) Bone health
d) Antioxidant defense

2. Which of the following is a good source of Vitamin A?
a) Citrus fruits
b) Dairy products
c) Leafy green vegetables
d) Red meat

3. What is a potential effect of Vitamin A deficiency?
a) Rickets
b) Night blindness
c) Scurvy
d) Pellagra

4. What is the primary function of Vitamin D?
a) Blood clotting
b) Calcium absorption and bone health
c) Vision
d) Collagen synthesis

5. Which of the following is a good source of Vitamin D?
a) Fatty fish
b) Citrus fruits
c) Nuts and seeds
d) Whole grains

6. What is a potential effect of Vitamin D deficiency?

a) Rickets b) Night blindness
c) Scurvy d) Pellagra

7. What is the primary function of Vitamin E?
a) Blood clotting
b) Antioxidant defense
c) Calcium absorption
d) Collagen synthesis

8. Which of the following is a good source of Vitamin E?
a) Red meat
b) Dairy products
c) Nuts and seeds
d) Leafy green vegetables

9. What is a potential effect of Vitamin E deficiency?
a) Rickets
b) Night blindness
c) Hemorrhage and muscle weakness
d) Pellagra

10. What is the primary function of Vitamin K?
a) Blood clotting
b) Vision
c) Bone health
d) Antioxidant defense

11. Which of the following is a good source of Vitamin K?
a) Fatty fish
b) Leafy green vegetables

c) Citrus fruits
d) Whole grains

12. What is a potential effect of Vitamin K deficiency?
a) Rickets
b) Night blindness
c) Hemorrhage and impaired blood clotting
d) Pellagra

13. What is the primary function of Thiamine (Vitamin B1)?
a) Vision
b) Energy metabolism
c) Antioxidant defense
d) Blood clotting

14. Which of the following is a good source of Thiamine?
a) Fruits
b) Dairy products
c) Whole grains and legumes
d) Red meat

15. What is a potential effect of Thiamine deficiency?
a) Beriberi b) Pellagra
c) Scurvy d) Rickets

16. What is the primary function of Riboflavin (Vitamin B2)?
a) Vision b) Energy metabolism
c) Antioxidant defense d) Blood clotting

17. Which of the following is a good source of Riboflavin?
a) Fruits
b) Dairy products
c) Nuts and seeds
d) Leafy green vegetables

18. What is a potential effect of Riboflavin deficiency?
a) Beriberi b) Pellagra
c) Scurvy d) Ariboflavinosis

19. What is the primary function of Niacin (Vitamin B3)?
a) Vision
b) Energy metabolism
c) Antioxidant defense
d) Blood clotting

20. Which of the following is a good source of Niacin?
a) Fruits
b) Dairy products
c) Whole grains and legumes
d) Red meat

21. What is a potential effect of Niacin deficiency?
a) Beriberi b) Pellagra
c) Scurvy d) Pellagra

22. What is the primary function of Ascorbic Acid (Vitamin C)?
a) Vision
b) Energy metabolism

c) Antioxidant defense
d) Blood clotting

23. Which of the following is a good source of Vitamin C?
a) Fruits and vegetables
b) Dairy products
c) Nuts and seeds
d) Red meat

24. What is a potential effect of Vitamin C deficiency?
a) Beriberi b) Pellagra
c) Scurvy d) Rickets

25. What is the primary function of Folic Acid (Vitamin B9)?
a) Vision
b) DNA synthesis and cell division
c) Antioxidant defense
d) Blood clotting

26. Which of the following is a good source of Folic Acid?
a) Fruits and vegetables
b) Dairy products
c) Whole grains and legumes
d) Red meat

27. What is a potential effect of Folic Acid deficiency?
a) Beriberi b) Pellagra
c) Scurvy d) Neural tube defects

28. What is the primary function of Vitamin B6?
a) Vision
b) Energy metabolism
c) Antioxidant defense
d) Blood clotting

29. Which of the following is a good source of Vitamin B6?
a) Fruits b) Dairy products
c) Nuts and seeds d) Red meat

30. What is a potential effect of Vitamin B6 deficiency?
a) Beriberi
b) Pellagra
c) Scurvy
d) Dermatitis and neurological symptoms

31. What is the primary function of Vitamin B12?
a) Vision
b) Energy metabolism
c) Antioxidant defense
d) Blood clotting

32. Which of the following is a good source of Vitamin B12?
a) Fruits and vegetables b) Dairy products
c) Nuts and seeds d) Red meat

33. What is a potential effect of Vitamin B12 deficiency?
a) Beriberi
b) Pellagra
c) Scurvy

d) Pernicious anaemia and neurological symptoms

34. What is the primary function of Vitamin A in the body?
a) Maintenance of healthy skin and vision
b) Blood clotting
c) Calcium absorption
d) Wound healing

35. Which food sources are rich in Vitamin A?
a) Citrus fruits
b) Dark leafy greens, carrots, and sweet potatoes
c) Dairy products
d) Whole grains

36. What is the primary function of Vitamin D?
a) Regulation of calcium and phosphorus absorption
b) Blood clotting
c) Formation of red blood cells
d) Wound healing

37. Which nutrient does the human body produce in response to sunlight exposure?
a) Vitamin A b) Vitamin D
c) Vitamin E d) Vitamin K

38. What is the primary function of Vitamin E?
a) Blood clotting
b) Antioxidant function, protecting cells from damage
c) Calcium absorption
d) Wound healing

39. What is the primary function of Vitamin K?
a) Maintenance of healthy skin and vision
b) Blood clotting
c) Antioxidant function
d) Wound healing

40. What is the primary function of Thiamine (Vitamin B1)?
a) Energy metabolism
b) Regulation of calcium and phosphorus absorption
c) Formation of red blood cells
d) Wound healing

41. Which food sources are rich in Riboflavin (Vitamin B2)?
a) Whole grains and legumes
b) Dark leafy greens
c) Red meat and poultry
d) Citrus fruits

42: What is the function of Niacin (Vitamin B3) in the body?
a) Maintenance of healthy skin and vision
b) Energy metabolism and DNA repair
c) Formation of red blood cells
d) Wound healing

43. What is the primary function of Ascorbic Acid (Vitamin C)?
a) Blood clotting
b) Antioxidant function, supporting the immune system and collagen formation

c) Calcium absorption
d) Wound healing

45. What is the primary function of Vitamin B6?
a) Energy metabolism and amino acid synthesis
b) Blood clotting
c) Antioxidant function
d) Wound healing

46. What is the primary function of Vitamin B12?
a) Maintenance of healthy skin and vision
b) Blood clotting
c) Formation of red blood cells and nerve function
d) Wound healing

47. Which of the following is considered a macro mineral?
a) Iron b) Zinc
c) Calcium d) Copper

48. What is the primary difference between macro and micro minerals?
a) Macro minerals are required in larger amounts than micro minerals.
b) Micro minerals are visible to the naked eye.
c) Macro minerals are solely obtained from animal-based foods.
d) Micro minerals are stored in larger quantities in the body.

49. Which of the following is a micro mineral?
a) Potassium b) Magnesium

c) Selenium d) Sodium

50. Which group of minerals is essential in smaller quantities for the body's proper functioning?
a) Macro minerals
b) Micro minerals
c) Trace minerals
d) Major minerals

51. Which mineral plays a significant role in maintaining proper nerve function and muscle control?
a) Iron b) Phosphorus
c) Potassium d) Chromium

52. What is the primary function of calcium in the body?
a) Blood clotting
b) Muscle contraction
c) Bone and teeth health
d) Oxygen transport

53. Which mineral is essential for the formation of hemoglobin in red blood cells?
a) Copper b) Zinc
c) Iron d) Manganese

54. Which mineral aids in thyroid hormone production and helps regulate metabolism?
a) Iodine b) Fluoride
c) Boron d) Cobalt

55. Which mineral is crucial for the proper functioning of antioxidants and immune system support?

a) Selenium b) Molybdenum
c) Nickel d) Vanadium

56. What happens if the body lacks essential macro or micro minerals?
a) Immediate expulsion through waste
b) No impact on health
c) Potential health issues or deficiencies
d) Improved overall well-being

ANSWERS

1.b, 2.c, 3.b, 4.b, 5.a, 6.a, 7.b, 8.c, 9.c, 10.a, 11.b, 12.c, 13.b, 14.c, 15.a, 16.b, 17.b, 18.d, 19.b, 20.c, 21.d, 22.c, 23.a, 24.c, 25.b, 26.a, 27.d, 28.b, 29.c, 30.d, 31.b, 32.b, 33.d, 34.a, 35.b, 36.a, 37.b, 38.b, 39.b, 40.a, 41.a, 42.b, 43.b, 45.a, 46.c, 47.c, 48.a, 49.c, 50.c, 51.c, 52.c, 53.c, 54.a, 55.a, 56.c

5 MARKS

1. Define the functions of Vitamin A, emphasizing its role in vision, immune function, and cell differentiation?
2. Elaborate on the effects of Vitamin A deficiency on vision and overall health?
3. Explain the role of Vitamin D in calcium absorption and bone health?
4. Discuss sources of Vitamin D and its synthesis in the body?
5. Elucidate the functions of Vitamin E as an antioxidant and its role in protecting cell membranes.
6. Discuss dietary sources and the recommended intake of Vitamin E.

7. Explain the effects of Vitamin E deficiency on cell integrity and oxidative stress.
8. Describe the functions of Vitamin K in blood clotting and bone metabolism.
9. Explain the effects of Vitamin K deficiency on blood clotting and bone health.

10 MARKS

1. Define the functions of Thiamine (Vitamin B1), Riboflavin (Vitamin B2), and Niacin (Vitamin B3) in energy metabolism?
2. Discuss the role of Ascorbic Acid (Vitamin C) in collagen synthesis, immune function, and antioxidant activity?
3. Detail dietary sources and the recommended intake of Vitamin C?
4. Elaborate on the effects of Vitamin C deficiency on collagen integrity and scurvy?
5. Explain the role of Folic Acid (Vitamin B9) and Vitamin B6 in DNA synthesis and amino acid metabolism?
6. Discuss sources and recommended intake levels for both vitamins?
7. Detail the consequences of deficiencies in Folic Acid and Vitamin B6 on cell division and neurological function?
8. Describe the functions of Vitamin B12 in nerve function and red blood cell production?
9. Compare and contrast the characteristics of fat-soluble and water-soluble vitamins in terms of absorption, storage, and excretion in the body.

10. Discuss the importance of consuming a varied and balanced diet to ensure adequate intake of both fat-soluble and water-soluble vitamins?

AUTHOR PROFILE

Mrs.Prailin.R was born in 1986 in Kanayakumari District. She is currently working as an Assistant Professor in the Department of nutrition and Dietetics, St.Joseph's College of Arts and Science for Women, Hosur.She has completed M.Sc (N&D) in Manonmanium Sundaranar University and M.Phil in Vinayaga Mission university. She has a experience of 5 years. She has published papers in National and International conference. Her areas of interest include Food Science, Nutrition in life cycle and Principles of Human Nutrition.

ISBN 978-93-5401-837-0