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| Question | **Which of the following is a characteristic feature of polyunsaturated fats?** |
| Type | multiple-choice |
| Option | They are solid at room temperature |
| Option | They contain one double bond in their fatty acid chains |
| Option | They are typically derived from animal sources |
| Option | They contain more than one double bond in their fatty acid chains |
| Answer | 4 |
| Solution | Polyunsaturated fats have more than one double bond in their fatty acid chains and are typically found in plant-based oils, nuts, and fish. They are liquid at room temperature. |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is a correct distinction between monosaccharides and polysaccharides?** |
| Type | multiple-choice |
| Option | Monosaccharides can be stored for long periods as energy reserves, while polysaccharides cannot |
| Option | Polysaccharides are composed of one or two monosaccharides, whereas monosaccharides are long chains of sugar molecules. |
| Option | Polysaccharides require enzymes to break down into monosaccharides, while monosaccharides can directly enter the bloodstream |
| Option | Monosaccharides are used primarily for structural purposes, while polysaccharides are used primarily for energy |
| Answer | 3 |
| Solution | **Monosaccharides** are the simplest form of carbohydrates and can be directly absorbed into the bloodstream for immediate energy use. Examples include glucose and fructose.  **Polysaccharides**, due to their complex structure, must be broken down by digestive enzymes into simpler monosaccharides (e.g., glucose) before they can be used for energy. Examples include starch and glycogen. Polysaccharides are mainly used for energy storage or structural purposes in plants and animals. |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is the primary function of carbohydrates in the human body?** |
| Type | multiple-choice |
| Option | Repairing tissues |
| Option | Providing long-term energy storage |
| Option | Regulating body temperature |
| Option | Providing immediate energy |
| Answer | 4 |
| Solution | Carbohydrates are the body’s main source of quick energy. They are broken down into glucose, which is used for energy by cells |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **What is the role of essential fatty acids in the human body?** |
| Type | multiple-choice |
| Option | They are primarily used for building muscle mass |
| Option | They help in the formation of hormones and cell membranes |
| Option | They provide a direct source of energy for cellular functions |
| Option | They are stored for long-term energy release |
| Answer | 2 |
| Solution | Essential fatty acids, such as omega-3 and omega-6, are necessary for the formation of cell membranes, the production of eicosanoids (hormone-like substances), and regulating inflammation |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following proteins is classified as a complete protein due to its amino acid profile?** |
| Type | multiple-choice |
| Option | Legumes |
| Option | Eggs |
| Option | Spinach |
| Option | Rice |
| Answer | 2 |
| Solution | Complete proteins contain all nine essential amino acids required by the body. Eggs are a source of complete protein, unlike plant-based foods that may lack one or more essential amino acids. |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is an example of a fat-soluble vitamin?** |
| Type | multiple-choice |
| Option | Vitamin C |
| Option | Vitamin B12 |
| Option | Vitamin D |
| Option | Vitamin B6 |
| Answer | 3 |
| Solution | Fat-soluble vitamins (A, D, E, and K) dissolve in fats and are stored in the body’s fat tissues and liver. Vitamin D helps regulate calcium and phosphorus levels for bone health |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following minerals is primarily involved in the regulation of thyroid function?** |
| Type | multiple-choice |
| Option | Zinc |
| Option | Magnesium |
| Option | Iodine |
| Option | Selenium |
| Answer | 3 |
| Solution | Iodine is essential for the production of thyroid hormones, which regulate metabolism. Deficiency can lead to goiter and other thyroid-related disorders |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is a characteristic of saturated fats?** |
| Type | multiple-choice |
| Option | They are liquid at room temperature |
| Option | They have multiple double bonds in their structure |
| Option | They are mostly found in plant oils |
| Option | They are solid at room temperature |
| Answer | 4 |
| Solution | Saturated fats have no double bonds between carbon atoms and are typically solid at room temperature. They are found in animal fats and some plant oils like coconut oil |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following foods is a rich source of vitamin B12?** |
| Type | multiple-choice |
| Option | Citrus fruits |
| Option | Leafy vegetables |
| Option | Animal products such as meat and dairy |
| Option | Whole grains |
| Answer | 3 |
| Solution | Vitamin B12 is found primarily in animal products like meat, eggs, and dairy. It is essential for red blood cell production and neurological function |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| --- | --- |
| Question | **What is the main function of proteins in the human body?** |
| Type | multiple-choice |
| Option | Energy production |
| Option | Building and repairing tissues |
| Option | Regulation of metabolism |
| Option | Hormonal regulation |
| Answer | 2 |
| Solution | Proteins are fundamental for building and repairing tissues, enzymes, hormones, and immune system components. They are not the primary energy source, but can serve as one in case of deficiency |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| --- | --- |
| Question | **What type of fat is typically considered healthy and beneficial for heart health?** |
| Type | multiple-choice |
| Option | Trans fats |
| Option | Saturated fats |
| Option | Polyunsaturated fats |
| Option | Monounsaturated fats |
| Answer | 4 |
| Solution | Monounsaturated fats, found in foods like olive oil, avocados, and nuts, are considered heart-healthy fats. They help lower bad cholesterol levels and reduce the risk of heart disease |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is a consequence of a deficiency in iodine?** |
| Type | multiple-choice |
| Option | Pellagra |
| Option | Beriberi |
| Option | Goiter |
| Option | Scurvy |
| Answer | 3 |
| Solution | Iodine deficiency leads to goiter, which is an enlargement of the thyroid gland. Iodine is essential for the synthesis of thyroid hormones that regulate metabolism |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following vitamins acts as an antioxidant in the body?** |
| Type | multiple-choice |
| Option | Vitamin A |
| Option | Vitamin D |
| Option | Vitamin E |
| Option | Vitamin B6 |
| Answer | 3 |
| Solution | Vitamin E is a potent antioxidant that helps protect cells from oxidative damage. It also supports immune function and skin health |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is a water-soluble vitamin?** |
| Type | multiple-choice |
| Option | Vitamin A |
| Option | Vitamin D |
| Option | Vitamin C |
| Option | Vitamin K |
| Answer | 3 |
| Solution | Vitamin C is a water-soluble vitamin, meaning it dissolves in water and is not stored in the body. It is essential for immune function, wound healing, and the synthesis of collagen. |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | **Match the following:**   |  |  | | --- | --- | | **Column I** | **Column II** | | 1. Vitamin A | A) Essential for vision and immune function | | 2. Vitamin D | B) Prevents rickets and aids calcium absorption | | 3. Vitamin E | C) Acts as an antioxidant and protects cells from damage | | 4. Vitamin K | D) Important for blood clotting |   **Choose the correct option from below:** |
| Type | multiple-choice |
| Option | 1 - A, 2 - B, 3 - C, 4 – D |
| Option | 1 - D, 2 - A, 3 - C, 4 – B |
| Option | 1 - C, 2 - D, 3 - A, 4 – B |
| Option | 1 - B, 2 - A, 3 - D, 4 – C |
| Answer | 1 |
| Solution | **Vitamin A** is primarily essential for **vision** (night vision) and plays a role in immune function. It also supports skin health and cellular growth.  **Vitamin D** helps prevent **rickets** in children and is necessary for **calcium and phosphorus absorption** in the gut, essential for bone health.  **Vitamin E** is known for its **antioxidant** properties, protecting cells from oxidative damage caused by free radicals.  **Vitamin K** is crucial for **blood clotting**, helping in the synthesis of clotting factors in the liver.  This question tests the understanding of the primary functions and benefits of different vitamins, a crucial aspect of human nutrition. |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is the primary dietary source of vitamin K1 (phylloquinone)?** |
| Type | multiple-choice |
| Option | Fish liver oil |
| Option | Green leafy vegetables |
| Option | Dairy products |
| Option | Eggs |
| Answer | 2 |
| Solution | Vitamin K1 (phylloquinone) is found primarily in green leafy vegetables like spinach, kale, and broccoli. It plays a vital role in blood clotting. |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following amino acids is classified as essential for humans?** |
| Type | multiple-choice |
| Option | Glutamine |
| Option | Alanine |
| Option | Leucine |
| Option | Tyrosine |
| Answer | 3 |
| Solution | Leucine is an essential amino acid that the body cannot synthesize and must be obtained from dietary sources. It plays a crucial role in protein synthesis and muscle repair |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following micronutrients is directly involved in the synthesis of collagen and also has antioxidant properties?** |
| Type | multiple-choice |
| Option | Vitamin C |
| Option | Vitamin D |
| Option | Vitamin E |
| Option | Vitamin A |
| Answer | 1 |
| Solution | Vitamin C is essential for collagen synthesis, which is important for the structure of skin, blood vessels, and connective tissue. It also functions as an antioxidant to protect cells from oxidative stress |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **The elements present in the carbohydrates are** |
| Type | multiple-choice |
| Option | Carbon, Hydrogen, and Oxygen |
| Option | Carbon, Hydrogen, and Nitrogen |
| Option | Hydrogen, Oxygen, and Sulphur |
| Option | Carbon, Oxygen, and Nitrogen |
| Answer | 1 |
| Solution | The general formula of carbohydrate is Cx(H2O)y. |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is a primary function of vitamin B9 (folic acid) during pregnancy?** |
| Type | multiple-choice |
| Option | Bone health |
| Option | Red blood cell production |
| Option | DNA synthesis and fetal development |
| Option | Vision improvement |
| Answer | 3 |
| Solution | Vitamin B9 (folic acid) is crucial for DNA synthesis and cell division, which is especially important during pregnancy for fetal growth and preventing neural tube defects |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following lipids is considered essential and is required for the production of eicosanoids?** |
| Type | multiple-choice |
| Option | Monounsaturated fats |
| Option | Omega-3 fatty acids |
| Option | Omega-6 fatty acids |
| Option | Cholesterol |
| Answer | 2 |
| Solution | Omega-3 fatty acids are essential fats that play a role in the production of eicosanoids, which are involved in inflammation and immune response. They are primarily found in fatty fish, flaxseeds, and walnuts |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following carbohydrates is classified as a complex carbohydrate?** |
| Type | multiple-choice |
| Option | Glucose |
| Option | Fructose |
| Option | Sucrose |
| Option | Starch |
| Answer | 4 |
| Solution | Starch is a complex carbohydrate made up of long chains of glucose molecules. It is found in foods like potatoes, rice, and grains, providing a steady source of energy |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which vitamin deficiency is associated with a condition called "rickets" in children and osteomalacia in adults?** |
| Type | multiple-choice |
| Option | Vitamin A |
| Option | Vitamin D |
| Option | Vitamin E |
| Option | Vitamin K |
| Answer | 2 |
| Solution | Vitamin D deficiency leads to impaired calcium absorption, causing rickets in children (softening of bones) and osteomalacia in adults (bone weakening |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is true regarding the difference between macronutrients and micronutrients?** |
| Type | multiple-choice |
| Option | Micronutrients are required in larger quantities than macronutrients |
| Option | Macronutrients provide energy, while micronutrients help in regulating body functions |
| Option | Micronutrients are more important for growth and development than macronutrients |
| Option | Macronutrients are essential only for adults, whereas micronutrients are required only by children |
| Answer | 2 |
| Solution | Macronutrients (proteins, fats, and carbohydrates) are required in large amounts and provide the energy needed for body functions and growth. Micronutrients (vitamins and minerals) are needed in smaller amounts and play a key role in regulating various body functions, including metabolism and immune response |
| Positive Marks | 2 |
| Negative Marks | 0.66 |

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| Question | **Which of the following is the correct classification of carbohydrates based on their chemical structure?** |
| Type | multiple-choice |
| Option | Monosaccharides, Disaccharides, Polysaccharides |
| Option | Glucose, Fructose, Galactose |
| Option | Starch, Glycogen, Cellulose |
| Option | Lactose, Maltose, Sucrose |
| Answer | 1 |
| Solution | Carbohydrates are classified based on their chemical structure into three categories:  **Monosaccharides** are simple sugars like glucose, fructose, and galactose.  **Disaccharides** consist of two monosaccharide units, e.g., sucrose, lactose, and maltose.  **Polysaccharides** are complex carbohydrates made of many monosaccharide units, e.g., starch, glycogen, and cellulose |
| Positive Marks | 2 |
| Negative Marks | 0.66 |