

## BIOMOLECULES

- Which of the following elements is most abundant (percentage dry weight) in both humans and bacteria?
  - Oxygen
  - Hydrogen
  - Carbon
  - Nitrogen
- The framework elements of plants are
  - Magnesium, copper, iron
  - Copper, carbon, oxygen
  - Manganese, calcium, nitrogen
  - Carbon, hydrogen, oxygen
- A trace element is an element that
  - Is a radioactive and can be traced by Geiger-count
  - Is required in very minute amounts
  - Draws other element out of protoplasm
  - Was one of the first to be discovered in protoplasm
- The plant ash is an indication of
  - Mineral salts absorbed by the plant
  - Organic matter of the plant
  - Both the mineral salts and organic matter
  - None
- What is the most important property of water for which it is needed in the body?
  - It is in a liquid form
  - It is made of  $H_2$  and  $O_2$ , and this  $O_2$  can be used in cellular metabolism
  - It is tasteless, colourless and odourless
  - It is a universal solvent
- The high boiling point of water is advantageous to living organisms because
  - The environment seldom reaches the boiling point of water
  - Organisms can easily boil off enough water to keep themselves cool
  - It allows organisms to spread heat evenly throughout their bodies
  - Organisms can absorb a great deal of heat before they reach the boiling point
- What is the general formula of carbohydrates?
  - $C_nH_{2n}O_n$
  - $C_{2n}H_nO_n$
  - $C_nH_{2n}O_{2n}$
  - $C_nH_nO_n$
- The most common monomer of carbohydrates is a molecule of
  - Phospholipi
  - Maltose
  - Amino acid
  - Glucose
- Which of the following is NOT a carbohydrate?
  - Methionine
  - Glycogen
  - Starch
  - Chitin
- Lactose is present in
  - Sugarcane
  - Fruits
  - Milk
  - Both (b) and (c)
- The basic unit of starch is
  - Glucose and fructose
  - Glucose and galactose
  - Glucose
  - Fructose

- 12 Starch is detected in food by its  
 1) White appearance  
 2) Blue black reaction with iodine solution  
 3) Presence as an energy store  
 4) Granular form even if cooked
- 13 Cellulose is  
 1) Disaccharide  
 2) Pentosan polysaccharide  
 3) Hexosan polysaccharide  
 4) Mucopolysaccharide
- 14 Which of the following is true of both starch and cellulose?  
 1) they are both polymer of glucose  
 2) They are geometric isomers of each other  
 3) They can both be digested by humans  
 4) They are both structural components of plant cell wall
- 15 The exoskeleton of insects is formed of chitin. This is a  
 1) Mucoprotein  
 2) Lipid  
 3) Lipoprotein  
 4) Polysaccharide
- 16 Glycoproteins are known to play an important role in cell recognition. The specificity of this recognition is provided largely by  
 1) Protein portion of the glycoproteins  
 2) Carbohydrate portion of the glycoproteins  
 3) Both carbohydrates and protein components of these glycoproteins  
 4) Lipid portion of glycoproteins
- 17 Vegetable oils are  
 1) Sodium salts of higher fatty acids  
 2) Potassium salts of higher fatty acids  
 3) Mixture of sodium and potassium salts of higher fatty acids  
 4) Glycerides of fatty acids
- 18 A fatty acid is unsaturated if it  
 1) Contains hydrogen  
 2) Contain double bonds  
 3) Contains an acidic group  
 4) Bonds to glycogen group
- 19 Fats are solids at  
 1) 10°C  
 2) 20°C  
 3) 30°C  
 4) 40°C
- 20 Each fat molecule is formed from  
 1) Three glycerol molecules and three fatty acid molecules  
 2) One glycerol molecule and one fatty acid molecule  
 3) One glycerol molecule and three fatty acid molecule  
 4) Three glycerol molecules and one fatty acid molecule
- 21 Waxes are long chain compounds belonging to the class of  
 1) Esters  
 2) Ethers  
 3) Alcohols  
 4) Acids
- 22 The term protein was coined by  
 1) Henry  
 2) Sanger  
 3) Berzelius  
 4) Dujardin
- 23 The specificity of a protein depends upon  
 1) Quantity in which it is present in the system  
 2) Linear sequence of amino acids molecules  
 3) Other proteins present in the system  
 4) Time of its synthesis
- 24 Peptide bonds are present between  
 1) Pyrimidine base  
 2) Amino acids  
 3) Purine base  
 4) Purine and pyrimidine bases

- 25 Lysine is an essential amino acid because  
 1) It is very rare  
 2) It has a high nutritive value  
 3) It is an important constituent of all proteins  
 4) It is not formed in the body and has to be provided through diet
- 26 The functional group with the formula-NH<sub>2</sub>  
 1) An amino group  
 2) A carbonyl group  
 3) A hydroxyl group  
 4) A phosphate group
- 27 A protein rich in lysine and arginine at pH 7.4 behaves as  
 1) Acidic protein  
 2) Neutral protein  
 3) Basic protein  
 4) Buffer protein
- 28 The most abundant protein in the plant world is found in  
 1) Root hairs  
 2) Mitochondria  
 3) Chloroplast  
 4) Virus
- 29 The tertiary structure of a protein is the  
 1) Bonding together of several polypeptide chains by weak bonds  
 2) Order in which amino acids are joined in a peptide chain  
 3) Twisting of a peptide chain an alpha helix  
 4) Three-dimensional shape
- 30 Cytochromes are  
 1) Riboflavin nucleotides  
 2) Pyrimidine nucleotides  
 3) Iron porphyrin proteins  
 4) Flavoproteins
- 31 DNA is localised in  
 1) Golgi apparatus  
 2) Nucleus, chloroplast and mitochondria  
 3) Lysosomes  
 4) Microsomes
- 32 Nucleic acid was isolated (as nuclein) for the first time by  
 1) Robert Koch  
 2) Alexander Fleming  
 3) F. Miescher  
 4) Altmann
- 33 The building blocks of nucleic acids are  
 1) Nucleoside  
 2) Nucleoprotein  
 3) Amino acid  
 4) Nucleotide
- 34 Chemically DNA differs from RNA by  
 1) Thymine present in DNA and RNA  
 2) Ribose and thymine present in DNA and deoxyribose and uracil in RNA  
 3) Ribose and thymine in DNA and deoxyribose and uracil in RNA  
 4) Deoxyribose in DNA and ribose in RNA

- 35 Pyrimidines of RNA are represented by  
 1) Thymine and cytosine      2) Adenosine      3) Adenine and guanine      4) Uracil and cytosine
- 36 Two strands of a molecule of DNA are linked sidewise by  
 1) Ester bonds      2) Glycosidic bonds      3) Purine-pyrimidine hydrogen bonds      4) All of these
- 37 Watson and Crick proposed the model of DNA in  
 1) 1953      2) 1943      3) 1963      4) 1955
- 38 Two strands of DNA are attached by hydrogen bonds between  
 1) A-T,G-C      2) A-C,G-T      3) A-U,G-C      4) A-G, T-C
- 39 Distance between two DNA strands is  
 1) 3.4 Å      2) 34 Å      3) 20 Å      4) 340 Å
- 40 The bond present between the two nucleosides of long polynucleotide molecule is  
 1) hydrogen bond      2) High energy phosphate bond      3) Phosphodiester bond      4) Covalent bond
- 41 If a DNA strand contains 2,000 base pairs, how many spirals would occur in each strand?  
 1) 200      2) 2,000      3) 4,000      4) 68,000
- 42 In "Z" DNA there is  
 1) Smooth back bone and is right-handed      3) Zigzag backbone and is right -handed  
 2) Smooth back bone and is left-handed      4) Zigzag backbone and is left-handed
- 43 What is true about enzymes?  
 1) All act best at pH 7.0      2) All are amino acids      3) All are proteins      4) All act best at 0°C
- 44 'Enzymes are proteins'. was suggested by  
 1) Pasteur      2) Leeuwenhoek      3) Miller      4) Sumner
- 45 The enzyme urease was first obtained in pure crystalline form by:  
 1) Buchner      2) Sumner      3) Nageli      4) Dujardin
- 46 Enzymes, vitamins and hormones can be classified in a single category of biological chemicals because all of them  
 1) Are proteins      3) Are synthesised in organisms  
 2) Aid in regulating metabolism      4) Enhance the oxidative metabolism

- 47 When coenzyme combines with apoenzymes, it is called  
1) Holoenzyme                      2) Cofactor                      3) Isoenzyme                      4) Prosthetic group
- 48 Which part of an active enzyme is denatured by heat?  
1) Apoenzyme                      2) Holoenzyme                      3) Coenzyme                      4) Activator
- 49 Which of the following is iron porphyrin coenzyme or cofactor?  
1) Coenzyme A                      2) Cytochrome                      3) NAD                      4) FAD
- 50 Zymase from yeast cell was obtained by  
1) Buchner                      2) Urey                      3) Harold Smith                      4) Louis Pasteur