

BIOMOLECULES

1 Which of the following elements is most abundant (percentage dry weight) in both humans and bacteria?

- 1) Oxygen 2) Hydrogen 3) Carbon 4) Nitrogen

Ans:3

2 The framework elements of plants are

- 1) Magnesium, copper, iron 3) Manganese, calcium, nitrogen
2) Copper, carbon, oxygen 4) Carbon, hydrogen, oxygen

Ans:4

3 A trace element is an element that

- 1) Is a radioactive and can be traced by Geiger-count 3) Draws other element out of protoplasm
2) Is required in very minute amounts 4) Was one of the first to be discovered in protoplasm

Ans:2

4 The plant ash is an indication of

- 1) Mineral salts absorbed by the plant 3) Both the mineral salts and organic matter
2) Organic matter of the plant 4) None

Ans:1

5 What is the most important property of water for which it is needed in the body?

- 1) It is in a liquid form 3) It is tasteless, colourless and odourless
2) It is made of H₂ and O₂, and this O₂ can be used in cellular metabolism 4) It is a universal solvent

Ans:4

6 The high boiling point of water is advantageous to living organisms because

- 1) The environment seldom reaches the boiling point of water
2) Organisms can easily boil off enough water to keep themselves cool
3) It allows organisms to spread heat evenly throughout their bodies
4) Organisms can absorb a great deal of heat before they reach the boiling point

Ans:1

7 What is the general formula of carbohydrates?

- 1) C_nH_{2n}O_n 2) C_{2n}H_nO_n 3) C_nH_{2n}O_{2n} 4) C_nH_nO_n

Ans:1

8 The most common monomer of carbohydrates is a molecule of

- 1) Phospholipid 2) Maltose 3) Amino acid 4) Glucose

Ans:4

9 Which of the following is NOT a carbohydrate?

- 1) Methionine 2) Glycogen 3) Starch 4) Chitin

Ans:1

10 Lactose is present in

- 1) Sugarcane 2) Fruits 3) Milk 4) Both (b) and (c)

Ans:3

11 The basic unit of starch is

- 1) Glucose and fructose 2) Glucose and galactose 3) Glucose 4) Fructose

Ans:3

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
Ans:2

- 13 Cellulose is
1) Disaccharide 2) Pentosan polysaccharide 3) Hexosan polysaccharide 4) Mucopolysaccharide
Ans:3

- 14 Which of the following is true of both starch and cellulose?
1) they are both polymer of glucose 3) They can both be digested by humans
2) They are geometric isomers of each other 4) They are both structural components of plant cell wall
Ans:1

- 15 The exoskeleton of insects is formed of chitin. This is a
1) Mucoprotein 2) Lipid 3) Lipoprotein 4) Polysaccharide
Ans:4

- 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 3) Both carbohydrates and protein components of these glycoproteins
2) Carbohydrate portion of the glycoproteins 4) Lipid portion of glycoproteins
Ans:2

- 17 Vegetable oils are
1) Sodium salts of higher fatty acids 3) Mixture of sodium and potassium salts of higher fatty acids
2) Potassium salts of higher fatty acids 4) Glycerides of fatty acids
Ans:4

- 18 A fatty acid is unsaturated if it
1) Contains hydrogen 2) Contain double bonds 3) Contains an acidic group 4) Bonds to glycogen
Ans:2

- 19 Fats are solids at
1) 10°C 2) 20°C 3) 30°C 4) 40°C
Ans:2

- 20 Each fat molecule is formed from
1) Three glycerol molecules and three fatty acid molecules 3) One glycerol molecule and three fatty acid molecule
2) One glycerol molecule and one fatty acid molecule 4) Three glycerol molecules and one fatty acid molecule
Ans:3

- 21 Waxes are long chain compounds belonging to the class of
1) Esters 2) Ethers 3) Alcohols 4) Acids
Ans:1

- 22 The term protein was coined by
1) Henry 2) Sanger 3) Berzelius 4) Dujardin

Ans:3

- 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

Ans:2

- 24 Peptide bonds are present between
- 1) Pyrimidine base
 - 2) Amino acids
 - 3) Purine base
 - 4) Purine and pyrimidine bases

Ans:2

- 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

Ans:4

- 26 The functional group with the formula-NH₂
- 1) An amino group
 - 2) A carbonyl group
 - 3) A hydroxyl group
 - 4) A phosphate group

Ans:1

- 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

Ans:3

- 28 The most abundant protein in the plant world is found in
- 1) Root hairs
 - 2) Mitochondria
 - 3) Chloroplast
 - 4) Virus

Ans:3

- 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

Ans:4

- 30 Cytochromes are
- 1) Riboflavin nucleotides
 - 2) Pyrimidine nucleotides
 - 3) Iron porphyrin proteins
 - 4) Flavoproteins

Ans:3

- 31 DNA is localised in
- 1) Golgi apparatus
 - 2) Nucleus, chloroplast and mitochondria
 - 3) Lysosomes
 - 4) Microsomes

Ans:2

- 32 Nucleic acid was isolated (as nuclein) for the first time by
- 1) Robert Koch
 - 2) Alexander Fleming
 - 3) F. Miescher
 - 4) Altmann

Ans:3

- 33 The building blocks of nucleic acids are
- 1) Nucleoside
 - 2) Nucleoprotein
 - 3) Amino acid
 - 4) Nucleotide

Ans:4

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

Ans:4

35 Pyrimidines of RNA are represented by

- | | | | |
|-------------------------|--------------|------------------------|------------------------|
| 1) Thymine and cytosine | 2) Adenosine | 3) Adenine and guanine | 4) Uracil and cytosine |
|-------------------------|--------------|------------------------|------------------------|

Ans:4

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 |
|----------------|---------------------|-------------------------------------|-----------------|

Ans:3

37 Watson and Crick proposed the model of DNA in

- | | | | |
|---------|---------|---------|---------|
| 1) 1953 | 2) 1943 | 3) 1963 | 4) 1955 |
|---------|---------|---------|---------|

Ans:1

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 |
|------------|------------|------------|-------------|

Ans:1

39 Distance between two DNA strands is

- | | | | |
|----------|---------|---------|----------|
| 1) 3.4 Å | 2) 34 Å | 3) 20 Å | 4) 340 Å |
|----------|---------|---------|----------|

Ans:3

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 |
|------------------|-------------------------------|------------------------|------------------|

Ans:3

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 |
|--------|----------|----------|-----------|

Ans:1

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 |

Ans:4

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 |
|---------------------------|------------------------|---------------------|------------------------|

Ans:3

44 'Enzymes are proteins'. was suggested by

- | | | | |
|------------|----------------|-----------|-----------|
| 1) Pasteur | 2) Leeuwenhoek | 3) Miller | 4) Sumner |
|------------|----------------|-----------|-----------|

Ans:4

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