CLASS XI BIO CH:9

Set 4 – Biomolecules

---

1. Which of the following carbohydrates is a non-reducing sugar?
A) Sucrose
B) Glucose
C) Maltose
D) Lactose

2. Which one of the following is a pentose sugar?
A) Ribose
B) Glucose
C) Fructose
D) Galactose

3. The major structural polysaccharide of plant cell wall is —
A) Cellulose
B) Glycogen
C) Pectin
D) Chitin

4. In cellulose, β(1→4) linkage is found between —
A) Glucose units
B) Galactose units
C) Fructose units
D) Ribose units

5. Amylose and amylopectin are components of —
A) Starch
B) Cellulose
C) Chitin
D) Glycogen

6. In amylopectin, branching occurs through —
A) α(1→6) linkages
B) β(1→6) linkages
C) α(1→4) linkages
D) β(1→4) linkages

7. The molecule which connects carbohydrate metabolism and fat metabolism is —
A) Acetyl-CoA
B) Glucose
C) Pyruvate
D) Glycerol

8. Glycogen is stored mainly in —
A) Liver and muscles

CLASS XI BIO CH:9

B) Brain
C) Lungs
D) Skin

9. Which carbohydrate is present in milk?
A) Lactose
B) Maltose
C) Glucose
D) Sucrose

10. The linkage between glycerol and fatty acids in lipids is —
A) Ester linkage
B) Peptide linkage
C) Glycosidic linkage
D) Phosphodiester linkage

11. Unsaturated fatty acids are —
A) Liquids at room temperature
B) Solids at room temperature
C) Always essential
D) None

12. Saturated fatty acids are —
A) Solids at room temperature
B) Liquids at room temperature
C) Always essential
D) Always harmful

13. Which one of the following is a derived lipid?
A) Steroid
B) Phospholipid
C) Triglyceride
D) Wax

14. Which one of the following lipids acts as a precursor for sex hormones?
A) Cholesterol
B) Lecithin
C) Wax
D) Phospholipid

15. The prosthetic group of haemoglobin is —
A) Haem
B) Iron
C) Globin
D) Magnesium

16. The bond responsible for maintaining secondary structure of proteins is —
A) Hydrogen bond
B) Peptide bond

CLASS XI BIO CH:9

C) Ionic bond
D) Disulfide bond

17. The folding of a polypeptide chain into α-helices and β-sheets occurs during —
A) Secondary structure
B) Primary structure
C) Tertiary structure
D) Quaternary structure

18. Which of the following statements about enzymes is true?
A) They lower activation energy
B) They increase product concentration
C) They alter equilibrium
D) They are consumed in reaction

19. The protein part of an enzyme is called —
A) Apoenzyme
B) Coenzyme
C) Cofactor
D) Prosthetic group

20. The inorganic component required for enzyme activity is —
A) Cofactor
B) Coenzyme
C) Apoenzyme
D) Catalyst

21. Vitamins acting as coenzymes are —
A) Organic molecules
B) Metal ions
C) Amino acids
D) Nucleotides

22. The enzyme carbonic anhydrase contains —
A) Zinc
B) Iron
C) Copper
D) Magnesium

23. The enzyme catalase contains —
A) Iron
B) Magnesium
C) Calcium
D) Zinc

24. The specificity of an enzyme depends on —
A) Active site
B) Temperature
C) pH
D) Concentration

CLASS XI BIO CH:9

25. When enzyme concentration is doubled (substrate excess), rate of reaction —
A) Doubles
B) Triples
C) Becomes half
D) Remains same

26. When substrate concentration is very high, the reaction rate becomes —
A) Maximum (Vmax)
B) Zero
C) Minimum
D) Infinite

27. Km value represents —
A) Substrate concentration at half Vmax
B) Maximum velocity
C) Enzyme concentration
D) Energy released

28. A low Km value indicates —
A) High affinity of enzyme for substrate
B) Low affinity
C) High activation energy
D) Inhibition

29. The enzyme which breaks down starch to maltose is —
A) Amylase
B) Maltase
C) Lactase
D) Lipase

30. The enzyme that breaks down fats into fatty acids and glycerol is —
A) Lipase
B) Protease
C) Pepsin
D) Maltase

31. The enzyme that digests proteins in the stomach is —
A) Pepsin
B) Trypsin
C) Amylase
D) Lipase

32. Enzymes are —
A) Proteinaceous biocatalysts
B) RNA molecules only
C) Non-biological catalysts
D) Fat derivatives

33. Ribozymes are —
A) RNA molecules with catalytic activity

B) Protein molecules
C) DNA fragments
D) Fat molecules

34. The number of hydrogen bonds between cytosine and guanine is —
A) Three
B) Two
C) One
D) Four

35. The double helix structure of DNA is maintained by —
A) Hydrogen bonds
B) Peptide bonds
C) Covalent bonds
D) Van der Waals forces only

36. Chargaff's rule states that —
A) A = T and G = C
B) A + T = G + C
C) A = G and T = C
D) A ≠ T

37. DNA replication is called semi-conservative because —
A) One old and one new strand form each daughter DNA
B) Both strands are new
C) Both strands are old
D) One DNA remains unchanged

38. RNA differs from DNA because it —
A) Contains uracil instead of thymine
B) Is double-stranded
C) Contains deoxyribose
D) Has thymine

39. mRNA carries genetic information from —
A) Nucleus to ribosome
B) Ribosome to nucleus
C) tRNA to DNA
D) Nucleus to cytoplasm only

40. tRNA carries —
A) Amino acids
B) Codons
C) DNA
D) Sugars

41. The anticodon is found on —
A) tRNA
B) mRNA

CLASS XI BIO CH:9

C) rRNA
D) DNA

42. The ribose sugar differs from deoxyribose by —
A) Presence of one extra oxygen atom
B) Presence of one less hydrogen atom
C) Absence of phosphate group
D) Difference in base

43. Nucleosides differ from nucleotides by absence of —
A) Phosphate group
B) Base
C) Sugar
D) Nitrogen

44. The 3′–5′ phosphodiester bond is present in —
A) Nucleic acids
B) Proteins
C) Lipids
D) Carbohydrates

45. The most abundant biomolecule in the cell is —
A) Water
B) Protein
C) Lipid
D) Carbohydrate

46. Which of the following has the highest calorific value?
A) Fat
B) Carbohydrate
C) Protein
D) Cellulose

47. The enzyme that synthesizes RNA using DNA template is —
A) RNA polymerase
B) DNA polymerase
C) Ligase
D) Helicase

48. Nucleotides are joined together by —
A) Phosphodiester bonds
B) Hydrogen bonds
C) Peptide bonds
D) Glycosidic bonds

49. The major function of DNA is —
A) Transmission of genetic information
B) Energy production
C) Protein synthesis directly
D) Hormone formation

CLASS XI BIO CH:9

50. The major function of RNA is —
A) Protein synthesis
B) Energy transfer
C) Heredity storage
D) Enzyme activation

✅ Answer Key (Set 4 – Biomolecules)

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