Public Library · FBISE / NBF

Chemistry Grade 10 — Chapter 13

Biochemistry

by Public Library

Independent practice MCQs from the supplied Class 10 Chemistry notes pack. Total: 50 questions.

A. Important / Main Topics

1. Which of the following is NOT a function of proteins in the body?

(A) Storing genetic information
(B) Acting as enzymes
(C) Providing structural support
(D) Transporting molecules

Correct Answer: A

Explanation: Storing genetic information — this correctly answers the question.

2. Which of the following best describes proteins?

(A) Polysaccharides
(B) Polymers of amino acids
(C) Chains of fatty acids
(D) Simple sugars

Correct Answer: B

Explanation: Proteins are polymers of amino acids.

3. Which bond is responsible for linking amino acids together in a protein?

(A) Hydrogen bond
(B) Ionic bond
(C) Peptide bond
(D) Covalent bond

Correct Answer: C

Explanation: Peptide bond — this correctly answers the question.

4. Which of the following is a component of nucleic acids?

(A) Amino acid
(B) Fatty acid
(C) Glucose
(D) Phosphate group

Correct Answer: D

Explanation: Phosphate group is a component of nucleic acids.

5. Which of the following is a characteristic of vitamins?

(A) They are essential for normal body function
(B) They provide energy directly
(C) They are inorganic molecules
(D) They are a primary source of protein

Correct Answer: A

Explanation: Vitamins are essential for normal body function.

6. Which vitamin is important for vision and immune function and is fat-soluble?

(A) Vitamin C
(B) Vitamin A
(C) Vitamin B12
(D) Vitamin K

Correct Answer: B

Explanation: Vitamin A is important for vision and immune function.

7. Which acid carries genetic information?

(A) Amino acid
(B) Sulphuric acid
(C) Nucleic acid
(D) Ascorbic acid

Correct Answer: C

Explanation: Nucleic acid — this correctly answers the question.

8. Which vitamin helps the body absorb calcium and is fat-soluble?

(A) Vitamin B12
(B) Vitamin C
(C) Vitamin E
(D) Vitamin D

Correct Answer: D

Explanation: Vitamin D — this correctly answers the question.

9. Which of the following is a primary function of lipids in the body?

(A) Long-term energy storage
(B) Providing immediate energy
(C) Storing genetic information
(D) Catalyzing biochemical reactions

Correct Answer: A

Explanation: Lipids are important for long-term energy storage.

10. Which vitamin is essential for blood clotting?

(A) Vitamin A
(B) Vitamin K
(C) Vitamin C
(D) Vitamin D

Correct Answer: B

Explanation: Vitamin K is essential for blood clotting.

11. Amino acids are the basic structural unit of:

(A) Carbohydrates
(B) Lipids
(C) Proteins
(D) Nucleic acids

Correct Answer: C

Explanation: Amino acids are the basic structural unit of proteins.

12. Which of the following is an example of a carbohydrate?

(A) Alanine
(B) Palmitic acid
(C) Adenine
(D) Glucose

Correct Answer: D

Explanation: Glucose is an example of a carbohydrate.

13. The general formula of carbohydrates is:

(A) C_x(H□O)_y
(B) RCOOH
(C) ROH
(D) C_nH□n□□

Correct Answer: A

Explanation: The general formula of carbohydrates is C_x(H□O)_y.

14. Which of the following is a function of nucleic acids?

(A) Providing energy
(B) Carrying genetic information
(C) Acting as enzymes
(D) Storing fat

Correct Answer: B

Explanation: Carrying genetic information — this correctly answers the question.

15. Which of the following is a fat-soluble vitamin?

(A) Vitamin C
(B) Vitamin B
(C) Vitamin A
(D) Vitamin B12

Correct Answer: C

Explanation: Vitamin A — this correctly answers the question.

16. How does the body make protein?

(A) Through photosynthesis
(B) Through respiration
(C) Through digestion
(D) Through protein synthesis using amino acids

Correct Answer: D

Explanation: Through protein synthesis using amino acids — this correctly answers the question.

17. What do vitamins do for our body?

(A) Support metabolic functions
(B) Provide energy directly
(C) Store genetic information
(D) Form cell membranes

Correct Answer: A

Explanation: Support metabolic functions — this correctly answers the question.

18. How do parents protect their children from genetic disorders?

(A) Through vaccination
(B) Through parental screening tests
(C) Through surgery
(D) Through medication

Correct Answer: B

Explanation: Parents can protect their children from genetic disorders through parental screening tests.

19. Differentiate between genetic engineering and gene therapy.

(A) Genetic engineering treats disease; gene therapy modifies DNA
(B) Both are the same
(C) Genetic engineering modifies DNA; gene therapy treats or prevents disease
(D) Neither involves DNA

Correct Answer: C

Explanation: "Genetic engineering modifies DNA; gene therapy treats or prevents disease" is correct: it matches the idea asked in the question ("Differentiate between genetic engineering and gene therapy"), while the other choices do not.

20. How is gene cloning different from therapeutic cloning?

(A) Gene cloning produces stem cells; therapeutic cloning copies DNA
(B) Both are the same
(C) Neither involves DNA

(D) Gene cloning copies DNA segments; therapeutic cloning produces embryonic stem cells

Correct Answer: D

Explanation: Gene cloning copies DNA segments; therapeutic cloning produces embryonic stem cells — this correctly answers the question.

21. Which of the following is a function of carbohydrates?

(A) Providing energy to the body
(B) Long-term energy storage
(C) Carrying genetic information
(D) Acting as enzymes

Correct Answer: A

Explanation: Providing energy to the body — this correctly answers the question.

22. Which of the following is a function of lipids?

(A) Providing immediate energy
(B) Long-term energy storage
(C) Storing genetic information
(D) Catalyzing biochemical reactions

Correct Answer: B

Explanation: Lipids are important for long-term energy storage.

23. Which of the following is a function of proteins?

(A) Storing genetic information
(B) Providing immediate energy
(C) Acting as enzymes
(D) Forming cell membranes

Correct Answer: C

Explanation: Acting as enzymes — this correctly answers the question.

24. Which of the following is a function of nucleic acids?

(A) Providing energy
(B) Acting as enzymes
(C) Storing fat
(D) Carrying genetic information

Correct Answer: D

Explanation: Carrying genetic information — this correctly answers the question.

25. Which vitamin is important for vision and immune function and is fat-soluble?

(A) Vitamin A
(B) Vitamin C
(C) Vitamin B12
(D) Vitamin K

Correct Answer: A

Explanation: Vitamin A is important for vision and immune function.

B. Less Important / Secondary Topics

26. Which vitamin helps the body absorb calcium and is fat-soluble?

(A) Vitamin D
(B) Vitamin B12
(C) Vitamin C
(D) Vitamin E

Correct Answer: A

Explanation: Vitamin D — this correctly answers the question.

27. Which vitamin is essential for blood clotting?

(A) Vitamin A
(B) Vitamin K
(C) Vitamin C
(D) Vitamin D

Correct Answer: B

Explanation: Vitamin K is essential for blood clotting.

28. Which of the following is a component of nucleic acids?

(A) Amino acid
(B) Fatty acid
(C) Phosphate group
(D) Glucose

Correct Answer: C

Explanation: Phosphate group is a component of nucleic acids.

29. Which bond is responsible for linking amino acids together in a protein?

(A) Hydrogen bond
(B) Ionic bond
(C) Covalent bond
(D) Peptide bond

Correct Answer: D

Explanation: Peptide bond — this correctly answers the question.

30. Which of the following best describes proteins?

(A) Polymers of amino acids
(B) Polysaccharides
(C) Chains of fatty acids
(D) Simple sugars

Correct Answer: A

Explanation: Proteins are polymers of amino acids.

31. Which of the following is NOT a function of proteins in the body?

(A) Acting as enzymes
(B) Storing genetic information
(C) Providing structural support
(D) Transporting molecules

Correct Answer: B

Explanation: Storing genetic information — this correctly answers the question.

32. Which of the following is a characteristic of vitamins?

(A) They provide energy directly
(B) They are inorganic molecules
(C) They are essential for normal body function
(D) They are a primary source of protein

Correct Answer: C

Explanation: Vitamins are essential for normal body function.

33. Which acid carries genetic information?

(A) Amino acid
(B) Sulphuric acid
(C) Ascorbic acid
(D) Nucleic acid

Correct Answer: D

Explanation: Nucleic acid — this correctly answers the question.

34. Which of the following is a primary function of lipids in the body?

(A) Long-term energy storage
(B) Providing immediate energy
(C) Storing genetic information
(D) Catalyzing biochemical reactions

Correct Answer: A

Explanation: Lipids are important for long-term energy storage.

35. Which of the following is an example of a carbohydrate?

(A) Alanine
(B) Glucose
(C) Palmitic acid
(D) Adenine

Correct Answer: B

Explanation: Glucose is an example of a carbohydrate.

36. Define nucleic acids and explain their significance.

(A) Short-chain molecules that provide energy
(B) Proteins that act as enzymes
(C) Long-chain organic molecules that carry genetic information
(D) Lipids that store energy

Correct Answer: C

Explanation: Nucleic acids are long-chain organic molecules that carry genetic information.

37. What is gene therapy? How does it work?

(A) A technique that modifies DNA to enhance capabilities
(B) A technique that produces genetically identical organisms
(C) A technique that copies specific genes
(D) A medical technique that modifies genes to treat or prevent disease

Correct Answer: D

Explanation: Gene therapy is a medical technique that modifies genes to treat or prevent disease.

38. What is genetic engineering? Give one application.

(A) A process that modifies DNA; used in producing vaccines
(B) A process that treats disease; used in medicine
(C) A process that produces identical organisms; used in agriculture
(D) A process that copies genes; used in research

Correct Answer: A

Explanation: Genetic engineering modifies DNA and is used in producing vaccines.

39. What is cloning? Name the three types of cloning.

(A) Creating a new organism; reproductive, therapeutic, gene
(B) Creating a genetically identical copy; reproductive, therapeutic, gene
(C) Modifying DNA; reproductive, therapeutic, gene
(D) Copying genes; reproductive, therapeutic, gene

Correct Answer: B

Explanation: Cloning is creating a genetically identical copy. The three types are reproductive, therapeutic, and gene cloning.

40. How do pregnancy tests use biochemical principles to detect pregnancy?

(A) By detecting glucose in urine
(B) By detecting protein in blood
(C) By detecting the hormone hCG in urine or blood
(D) By detecting lipids in blood

Correct Answer: C

Explanation: By detecting the hormone hCG in urine or blood — this correctly answers the question.

41. Explain the process of cloning in biochemistry.

(A) Modifying DNA to enhance capabilities
(B) Treating disease by modifying genes
(C) Copying specific genes
(D) Creating a genetically identical copy

Correct Answer: D

Explanation: Cloning is the creation of a genetically identical copy.

42. What is the difference between genetic engineering and gene therapy?

(A) Genetic engineering modifies DNA; gene therapy treats or prevents disease
(B) Genetic engineering treats disease; gene therapy modifies DNA
(C) Both are the same
(D) Neither involves DNA

Correct Answer: A

Explanation: Genetic engineering modifies DNA; gene therapy treats or prevents disease — this correctly answers the question.

43. Which of the following is NOT a function of nucleic acids?

(A) Carrying genetic information
(B) Catalyzing biochemical reactions
(C) Storing hereditary information
(D) Transferring genetic data from one generation to another

Correct Answer: B

Explanation: Catalyzing biochemical reactions — this correctly answers the question.

44. Which of the following is a function of proteins?

(A) Storing genetic information
(B) Providing immediate energy
(C) Acting as enzymes
(D) Forming cell membranes

Correct Answer: C

Explanation: Acting as enzymes — this correctly answers the question.

45. Which of the following is a function of carbohydrates?

(A) Long-term energy storage
(B) Carrying genetic information
(C) Acting as enzymes
(D) Providing energy to the body

Correct Answer: D

Explanation: Providing energy to the body — this correctly answers the question.

46. Which of the following is a function of lipids?

(A) Long-term energy storage
(B) Providing immediate energy
(C) Storing genetic information
(D) Catalyzing biochemical reactions

Correct Answer: A

Explanation: Lipids are important for long-term energy storage.

47. Which vitamin is important for vision and immune function and is fat-soluble?

(A) Vitamin C
(B) Vitamin A
(C) Vitamin B12
(D) Vitamin K

Correct Answer: B

Explanation: Vitamin A is important for vision and immune function.

48. Which vitamin helps the body absorb calcium and is fat-soluble?

(A) Vitamin B12
(B) Vitamin C
(C) Vitamin D
(D) Vitamin E

Correct Answer: C

Explanation: Vitamin D — this correctly answers the question.

49. Which vitamin is essential for blood clotting?

(A) Vitamin A
(B) Vitamin C
(C) Vitamin D
(D) Vitamin K

Correct Answer: D

Explanation: Vitamin K is essential for blood clotting.

50. Which of the following is a component of nucleic acids?

(A) Phosphate group
(B) Amino acid
(C) Fatty acid
(D) Glucose

Correct Answer: A

Explanation: Phosphate group is a component of nucleic acids.