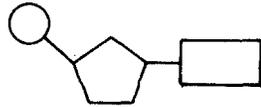


1. What are the basic structural units of a DNA molecule?

- (1) glucose molecules (2) amino acids (3) lipids (4) **nucleotides**

2. The diagram below represents the building block of a large molecule known as a

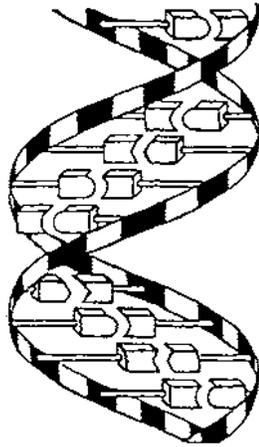


- (1) protein (2) fatty acid (3) carbohydrate (4) **nucleic acid**

3. All nucleotides of DNA and RNA contain a

- (1) uracil base (2) thymine base (3) ribose sugar (4) **phosphate group**

4. Which scientists developed the molecular model represented below?



- (1) Mendel and Darwin (3) Lamarck and Weismann
(2) **Watson and Crick** (4) Miller and Fox

5. Which scientists developed the double helix model of the DNA molecule?

- (1) **Watson and Crick** (2) Hardy and Weinberg (3) Darwin and Lamarck (4) Weismann and Miller

6. A polymer commonly found in the nucleus of cells is

- (1) ATP (2) hemoglobin (3) cellulose (4) **DNA**

7. Which molecule has the shape of a double-stranded helix?

- (1) RNA (2) **DNA** (3) ADP (4) ATP

8. The individuality of an organism is determined by the

- (1) **sequence of nitrogenous bases in deoxyribonucleic acid**
(2) number of amino acids in a cell
(3) position of the ribosomes on the endoplasmic reticulum
(4) number of nitrogenous bases in a codon

9. Watson and Crick described the DNA molecule as a

- (1) straight chain (2) single strand (3) **double helix** (4) branching chain

10. A student using a compound light microscope to observe a cell saw a number of threadlike nuclear structures such as those shown in the photograph below.



These threadlike structures are composed primarily of

- (1) fatty acids (2) glucose (3) **nucleic acids** (4) lipids

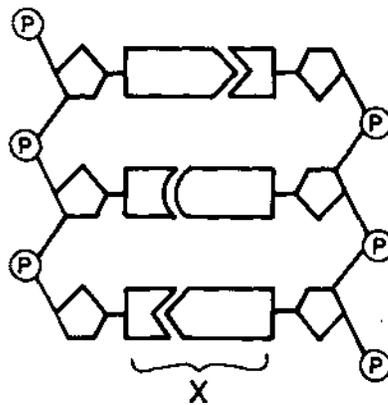
11. Which of the following nucleic acids contains thymine?

- (1) **DNA, only** (3) Transfer RNA, only
(2) Messenger RNA, only (4) DNA, messenger RNA, and transfer RNA

12. DNA is a polymer consisting of repeating units known as

- (1) dipeptides (2) **nucleotides** (3) amino acids (4) organic salts

13. The diagram below represents a portion of a DNA molecule.



The letter X represents two nitrogenous bases that are

- (1) identical and joined by hydrogen bonds (3) identical and joined by ionic bonds
(2) **complementary and joined by hydrogen bonds** (4) complementary and joined by ionic bonds

14. The DNA molecule has a ladder-type structural organization. Each rung of this ladder represents

- (1) alternating phosphate and glucose molecules (3) ribose molecules
(2) **a pair of nitrogenous bases** (4) a random organization of proteins and lipids

15. The nitrogen bases found in DNA are represented by the letters

- (1) A, U, G, and C (2) **A, T, G, and C** (3) T, A, P, and C (4) T, U, G, and C

16. The weakest bonds in a double-stranded molecule of deoxyribonucleic acid exist between the

- (1) deoxyribose sugars (2) phosphate groups (3) **nitrogenous bases** (4) 5-carbon sugars