

Atomic Energy Central School, Indore

Class XII Chemistry

BIOMOLECULES

Worksheet 3/3

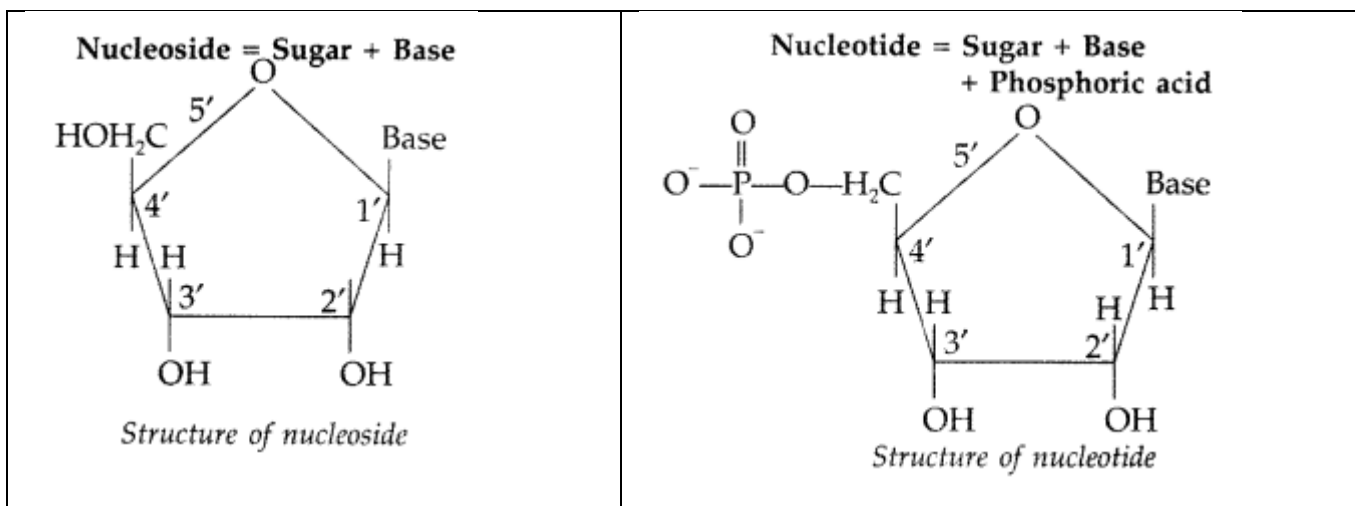
Questions

1. Name the four bases present in DNA. Which one of these is not present in RNA?
2. Which one is the complementary base of cytosine in one strand to that in other strand of DNA ?
a) Adenine b) Guanine c) Thymine d) Uracil
3. What type of linkage is present in Nucleic acids?
4. Write the products formed when a nucleotide from DNA containing thymine is hydrolysed?
5. When RNA is hydrolysed, there is no relationship among the quantities of different bases obtained.
What does this fact suggest about the structure of RNA?
6. What is referred to the primary structure of Nucleic acids?
7. State clearly what are known as nucleosides and nucleotides.
- 8 . Write the differences between DNA and RNA.
9. How can the dead bodies in any accident be identified?
10. The two strands in DNA are not identical but are complementary. Explain.

Answers

1. The four bases present in DNA are :
(i) Adenine (A)
(ii) Guanine (G)
(iii) Cytosine (C)
(iv) Thymine (T)
In RNA, Thymine (T) is absent. It has Uracil (U) in place of Thymine.
2. c) Thymine
3. Phosphodiester linkages are present in Nucleic Acids
4. β -D-2-deoxyribose, thymine and phosphoric acid
5. RNA has a single stranded structure.
6. Information regarding the sequence of nucleotides in the chain of a nucleic acid is called its primary structure.
- 7.

A nucleoside contains only two basic components of nucleic acids, i.e., a pentose sugar and a nitrogenous base. It is formed by the attachment of a base to V position of sugar.	Nucleotides. A nucleotide contains all the three basic components of nucleic acids, i.e., a phosphoric acid group, a pentose sugar and nitrogenous base. These are formed by the esterification of C_5-OH of the sugar of the nucleoside with phosphoric acid.
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8.

DNA (Deoxyribonucleic acid)	RNA (Ribonucleic acid)
It has a deoxyribose sugar and phosphate backbone having four distinct bases: thymine, adenine, cytosine, and guanine.	It has a ribose sugar and phosphate backbone with four varying bases: uracil, cytosine, adenine, and guanine.
It is located in the nucleus of a cell and in the mitochondria.	It is found in the cytoplasm, nucleus, and in the ribosome.
It has 2-deoxyribose sugar	It has Ribose sugar
DNA is functional in the transmission of genetic information. It forms as a media for long-term storage.	RNA is functional in the transmission of the genetic code that is necessary for the protein creation from the nucleus to the ribosome.
The DNA is a double-stranded molecule that has a long chain of nucleotides.	The RNA is a single-stranded molecule which has a shorter chain of nucleotides.
DNA replicates on its own, it is self-replicating.	RNA does not replicate on its own. It is synthesized from DNA when required.
The base pairing is as follows: G-C(Guanine pairs with Cytosine) A-T(Adenine pairs with Thymine).	The base pairing is as follows: G-C(Guanine pairs with Cytosine) A-U(Adenine pairs with Uracil).

9. This can be done by comparing the DNA of the dead body with the DNA's of parents or children.

10. The two strands are complementary to each other because the hydrogen bonds are formed between specific pairs of bases. Adenine forms hydrogen bonds with thymine whereas cytosine forms hydrogen bonds with guanine.

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