

Section 2 Final Evaluation

1. The carbohydrate component of a nucleoside and nucleotide is usually:

- The sugar ribose for RNA molecule and deoxyribose for DNA molecule
- Carboxylic group for DNA molecule and amino group for RNA molecule
- The deoxyribose for RNA molecule and sugar ribose for DNA molecule
- The deoxyribose for RNA molecule and deoxyribose for DNA molecule

Answer

The sugar ribose for RNA molecule and deoxyribose for DNA molecule

2. During protein translation, the sequence of codons (triplets of bases) of mRNA is important for:

- Maintaining the structure of the mRNA
- Translating the correct sequence of an amino acid
- DNA replication
- DNA synthesis

Answer

Translating the correct sequence of an amino acid

3. In DNA replication, the lagging strand short chains of nucleic acids, called Okazaki fragments, are generated and the enzyme DNA _____ joins the Okazaki fragments together with lagging strand for replication to proceed.

- topoisomerase
- polymerase
- helicase
- ligase

Answer

ligase

4. Point mutation when the orientation of a single base pair purine and pyrimidine nucleotide is reversed is termed:

- Transition
- Missense
- Transversion
- Nonsense

Answer

Transversion

5. The main function of _____ is to control the fluidity of biological membranes.

- Glycerol
- Cholesterol
- Glucose
- Phospholipid

Answer

Cholesterol

6. The smooth endoplasmic reticulum (ER) is involved in the synthesis of fatty acids and

- Detoxification by hydroxylation reactions
- Provides mechanical support for cells
- Monooxygenase reaction to produce hydrogen peroxide (H_2O_2)
- Production of energy

Answer

Detoxification by hydroxylation reactions

7. The only organelles which are equipped with their own (circular) DNA, RNA and ribosomes and can perform their own protein synthesis are:

- Nucleus
- Golgi apparatus
- Peroxisomes
- Mitochondria

Answer

Mitochondria

8. Phospholipids are the major component of cell membranes forming lipid bilayers because of their amphiphilic property whose structure consist of:

- Two hydrophilic fatty acid “tails” and a hydrophobic head consisting of a phosphate group (PO_4^{3-}) attached to the third glycerol carbon.
- Two hydrophobic fatty acid “tails” and a hydrophobic head consisting of a phosphate group (PO_4^{3-}) attached to the third glycerol carbon.
- Two hydrophobic fatty acid “tails” and a hydrophilic head consisting of a phosphate group (PO_4^{3-}) attached to the third glycerol carbon.
- Four hydrophilic fatty acid “tails” and a hydrophobic head consisting of a phosphate group (PO_4^{3-}) attached to the third glycerol carbon.

Answer

Two hydrophobic fatty acid “tails” and a hydrophilic head consisting of a phosphate group (PO_4^{3-}) attached to the third glycerol carbon.

9. The most important structural component of a nucleus consisting of positively charged protein and negatively charged DNA is called:

- Lysosome
- Chromatin
- Cytoskeleton
- Nucleolus

Answer

chromatin

10. The difference between amino acids and fatty acids in terms of structure is that amino acids carry a carboxyl and an amino group while fatty acids carry a carboxyl and a methyl group.

True

False

Answer

true

11. An example of a nucleotide with a two ring structures is:

Cytosine (C)

Adenine (A)

Uracil (U)

Thymine (T)

Answer

Adenine (A) [and also Guanine(G)]

12. DNA methylation occurs predominantly in _____ to inhibit the binding of transcription factors to their recognition site which results in the inhibition of gene transcription.

Guanine

Cytosine

Adenine

Thymine

Answer

Cytosine (C)

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