

## Section 2 Final Evaluation

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**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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