

PROTEIN SYNTHESIS

QUESTION ONE:

1.B 2.D 3.D 4.C 5.C 6.B 7.B 8.D 9.C 10.B

QUESTION TWO:

1. Ribosome 2. mRNA 3. Uracil 4. codon 5. anticodon
6. peptide bonds 7. transcription 8. RNA 9. rRNA 10. translation

QUESTION THREE:

1. Transcription
2. Nucleus
3.

MOLECULE D	MOLECULE B
Double stranded	Single stranded
Nitrogenous bases ATGC	Nitrogenous bases augc
Pentose sugar is deoxyribose	Pentose sugar is ribose
Helical in shape	No helical shape
Long chains	Relatively shorter chains
Bases are paired	No pairing of bases

4. Molecule B is mRNA and codes for an amino acid.
5. a) tRNA b) peptide bonds c) ribosome
6. ACU GGC UAU
- 7.

TRANSLATION

Each tRNA in the cytosol carries a specific amino acid. When the anticodon on the tRNA matches the codon on the mRNA, the tRNA brings along its amino acid. Amino acids become attached by peptide bonds to form a particular protein molecule.

QUESTION FOUR:

1. Translation
2. X- tRNA Y- mRNA
3. anticodon
4. ATA
5. Tyrosine
6. TRANSCRIPTION

Occurs in the nucleus, DNA molecule unwinds and splits into two when the hydrogen bonds break. One DNA strand serves as a template to form mRNA . Free RNA nucleotides from the nucleoplasm become attached to the DNA template to form mRNA. The mRNA breaks away from DNA and moves into the cytosol via a nuclear pore and becomes attached to a ribosome.

QUESTION FIVE:

1. 381
2. Gly Met Met Arg Arg Arg Asn

QUESTION SIX:

1. Translation
2. X-tRNA Y- mRNA
3. Ribosome
4. 6: CGT 8: GCA 10: AAA

5. a) 7: Cysteine 9: Glycine 10: Therolite
b) Phenylalanine
c) It will change the amino acid that was meant to code at that point in the protein. Therefore changing the entire protein and its function.

QUESTION SEVEN:

1. 21
2. 6
3. 6
4. ACU CCU GAG
5. 4: Threonine
- 5: Proline
- 6: Glutamate
6. CTC → CAC (DNA) → GUG (mRNA) → CAC (tRNA) → Valine
7. Carries less Oxygen. Carries less CO₂. Weakness. Illness.

QUESTION EIGHT:

1. Contains T, not U.
2. The mutated one is missing the ATC (third base triplet)
3. $1\ 480 \times 3 = \underline{4\ 440}$
4. Meiosis / DNA replication

QUESTION 9:

1. TRANSCRIPTION

Occurs in the nucleus, DNA molecule unwinds and splits into two when the hydrogen bonds break. One DNA strand serves as a template to form mRNA. Free RNA nucleotides from the nucleoplasm become attached to the DNA template to form mRNA. The mRNA breaks away from DNA and moves into the cytosol via a nuclear pore and becomes attached to a ribosome.

2. DNA codes for the production of amino acids.

3. a) UAU b) Histidine c) TAT

d) It will change the amino acid that was meant to code at that point in the protein. Therefore changing the entire protein and its function.

4. On the next page

DNA Replication	Transcription
DNA replication is the process of making two daughter strand where each daughter strand contains half of the original DNA double helix.	Transcription is the process of synthesis of RNA using DNA as a template.
Occurs in preparation for cell division.	Occurs in preparation for protein translation
Replicated DNA strand remains hydrogen bonded to its template DNA strand.	Transcribed RNA strand separates from its DNA template strand.
Products remain within nucleus.	Greater part of the product passes from nucleus into the cytoplasm.
It involves unwinding and splitting of the entire DNA molecule.	It involves unwinding and splitting of only those genes which are to be transcribed.