

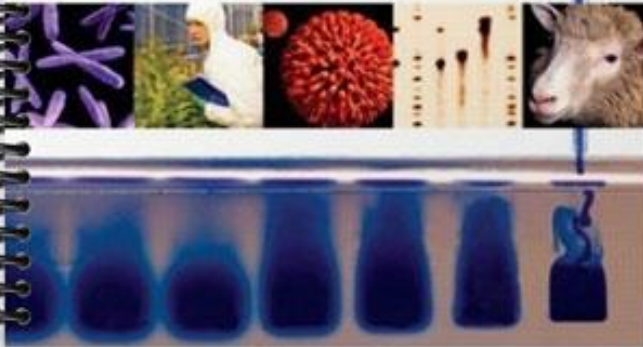
TEST BANK



Introduction to
Biotechnology

Second Edition

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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) The complementary base that hydrogen bonds with thymine in a DNA double helix is: 1) _____
A) Cytosine B) Thymine C) Guanine D) Adenine E) Uracil
- 2) Which of the following is a structural feature of DNA but not RNA? 2) _____
A) Contains deoxyribose sugars
B) Contains the nitrogenous base adenine
C) Single stranded
D) Contains the nitrogenous base uracil
E) Contains phosphate groups
- 3) Which type of base pair substitution mutation has no effect on the amino acid sequence of a protein? 3) _____
A) Frameshift mutation
B) Missense mutation
C) Nonsense mutation
D) Silent mutation
E) None of these choices
- 4) Which of the following is a characteristic of smooth endoplasmic reticulum (SER) but not rough endoplasmic reticulum (RER)? 4) _____
A) Steroid synthesis
B) Protein synthesis
C) Sends vesicles to the Golgi that contain proteins that are either secreted or become part of the plasma membrane
D) Drug and alcohol detoxification
E) Steroid synthesis *and* drug and alcohol detoxification
- 5) Which of the following enzymes is a component of the large ribosomal subunit and catalyzes the formation of peptide bonds between an amino acid attached to a peptidyl-tRNA and an amino acid from an aminoacyl-tRNA? 5) _____
A) DNA ligase
B) Reverse transcriptase
C) β -galactosidase
D) DNA polymerase
E) Peptidyl transferase
- 6) Addition of a poly(A) tail to mRNA molecule: 6) _____
A) Only occurs in bacteria
B) Allows mRNA molecules to be more stable in the cytoplasm
C) Is an important step in translation
D) Allows the mRNA to be recognized by ribosomes during translation
E) Results in removal of introns
- 7) This enzyme separates strands of DNA during DNA replication to make DNA single stranded so it can be copied: 7) _____
A) DNA helicase
B) Reverse transcriptase
C) DNA polymerase
D) DNA primase
E) DNA ligase

- 8) _____ bind to mRNA and tRNA during translation and allow for polypeptides to be synthesized. 8) _____
A) Ribosomes
B) RNA polymerases
C) Chromosomes
D) Chloroplasts
E) Nuclei
- 9) _____ is the enzyme that copies DNA during DNA replication. Thermostabile forms of this enzyme are essential for PCR. 9) _____
A) RNA polymerase
B) DNA ligase
C) RNA primase
D) DNA helicase
E) DNA polymerase
- 10) Which of the following is the typical start codon in most mRNA molecules? 10) _____
A) AAA B) CAG C) AUG D) GAA E) UGA
- 11) Which type of point mutation creates a stop codon in a gene? 11) _____
A) Frameshift
B) Nonsense
C) Silent
D) Missense
E) None of these choices
- 12) Nonprotein coding pieces of pre-mRNA that are removed during RNA splicing are called: 12) _____
A) Promoters
B) Poly(A) tails
C) Exons
D) Introns
E) SNPs
- 13) Which organelles are the site of ATP production by aerobic cellular respiration? 13) _____
A) Lysosomes
B) Ribosomes
C) Mitochondria
D) Rough endoplasmic reticulum
E) Golgi
- 14) Which type of RNA molecules transport amino acids to the ribosome during translation? 14) _____
A) rRNA B) mRNA C) tRNA D) miRNA E) siRNA
- 15) Which type of RNA molecules contain the genetic code of a gene that is read by ribosomes during translation? 15) _____
A) siRNA B) mRNA C) miRNA D) rRNA E) tRNA
- 16) In a nucleotide of DNA, which carbon of the deoxyribose sugar binds to the base? 16) _____
A) 1' B) 2' C) 3' D) 4' E) 5'
- 17) Addition of a poly(A) tail to a eukaryotic mRNA molecule during RNA processing is important for: 17)

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- A) Removing noncoding portions of the mRNA
 - B) mRNA stability
 - C) Transport of the mRNA
 - D) Ribosome recognition
 - E) None of these choices

18) Which of the following sequences is most commonly found at eukaryotic promoters? 18) _____

- A) Poly (A) tail
- B) TATAAT
- C) 7-methyl G cap
- D) 5'-GU . . . AG-3'
- E) Shine-Dalgarno sequence

19) Which of the following is the most commonly used stop codon in most mRNA molecules? 19) _____

- A) CAG
- B) AUG
- C) AAA
- D) GAA
- E) UGA

20) Synthesis of RNA from a DNA template is called: 20) _____

- A) Transformation
- B) Translation
- C) Transcription
- D) Reverse transcription
- E) None of these choices

- 1) D
- 2) A
- 3) D
- 4) E
- 5) E
- 6) B
- 7) A
- 8) A
- 9) E
- 10) C
- 11) B
- 12) C
- 13) C
- 14) C
- 15) B
- 16) A
- 17) B
- 18) B
- 19) E
- 20) C