Chapter 26: Translation

Matching Or Fill In
Choose the correct answer from the list. Not all the answers will be used.

A) AUG
B) nonsense
C) release factors
D) noninitiator
E) cloverleaf
F) preproteins
G) genetic code
H) streptomycin
I) proproteins
J) proofreading
K) UUA
L) synonyms

1)_____ Codons that specify the same amino acid are called _____.

2)_____ The fidelity of amino acid attachment to a tRNA is enhanced by the _____ ability of the corresponding aaRS.

3)_____ (omit the red questions) A mutation that converts an aminoacyl-coding codon to a Stop codon is known as a _____ mutation.

4)_____ Some proteins are synthesized as inactive precursors called _____.

5)_____ The _____ is composed of three-nucleotide codons that do not overlap and are read sequentially by the protein-synthesizing machinery.

6)_____ Translation termination requires _____ that recognize Stop codons.

7)_____ Almost all known tRNAs can be arranged in the so-called _____ secondary structure.

8)_____ EF-Tu binds all _____ aminoacyl tRNAs but that of $tRNA^{sec}$.

9)_____ At low concentrations the antibiotic _____ causes misreading of the mRNA.

10)_____ The start codon is usually _____.

Fill In Questions

11) Insertions or deletions of nucleotides can cause _____ mutations.

12) The correct amino acid is covalently attached to a tRNA by the corresponding _____.

13) In *E. coli*, translation requires _____ that are not permanently associated with the ribosome, designated IF-1, IF-2, and IF-3.

14) Codons that do not specify amino acids but signal the ribosome to terminate polypeptide chain elongation are termed _____.

15) Hydrolysis of GTP by EF-Tu is thermodynamically required for _____.

16) The structural similarities of EF-G and the EF-Tu–tRNA complex indicate that molecular _____ allows EF-G to displace the peptidyl–tRNA.

Multiple Choice Questions

17) The triplet code allows many amino acids to be specified by more than one codon. Such a code is said to be _____.
A) replicative
B) recursive
C) conclusive
D) elusive
E) degenerate

18) Each tRNA contains a trinucleotide sequence known as a(n) _____ that is complementary to an mRNA codon specifying the tRNA's amino acid.
A) anticodon
B) degenerate sequence
C) cloverleaf
D) reading frame
E) receptor

19) Which of the following tRNA binding sites are located on the ribosome?
A) A or aminoacyl site
B) P or peptidyl site
C) E or exit site
D) all of the above
E) none of the above

20) Polypeptide synthesis proceeds from the _____ to the _____.
A) C-terminus, N-terminus
B) exit site, modification site
C) N-terminus, C-terminus
D) modification site, exit site
E) 40S subunit, 60S subunit

21) The three stages for ribosome-mediated polypeptide elongation are:
A) initiation, elongation and termination.
B) decoding, transpeptidation, and translocation.
C) initiation, elongation, and release.
D) aa-tRNA binding, GTP-peptidation, and translocation.
E) none of the above

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Short Answer Questions

Write your answer in the space provided or on a separate sheet of paper.

22) Differentiate the roles of the small and large ribosomal subunits.

23) Describe the soluble protein factors necessary for *E. coli* protein synthesis. Provide examples of each type factor.

24) What is the proof that the ribosome is a ribozyme?