

Specific Examination Objectives

Question Topic	Total	Average Difficulty
Chapter 1 DNA	15	1.27
Chapter 2 RNA	7	1.71
Chapter 3 Proteins	8	1.50

Exam ID	Total Questions	Average Difficulty
CLS405 Molecular Exam #1	30	1.43

On this examination, the student will be expected to:

1. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4229]
Define helicase.
2. [Level 3/Molecular Diagnostics/Chapter 1 DNA/4230]
Identify homologous pairings of DNA base sequences.
3. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4231]
Define Restriction Endonuclease.
4. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4232]
State the molecular structure of a molecule of DNA.
5. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4233]
Define the term 'antiparallel' with respect to the DNA molecule.
6. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4234]
State the mechanism by which one DNA strand binds to the other strand in the molecule.
7. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4235]
Define the term 'semiconservative', with respect to DNA replication.
8. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4236]
Identify the type of nucleotides required for base pairing between strands of a DNA molecule.
9. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4238]
Define denaturation as it pertains to DNA.
10. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4239]
State the sequence orientation of a newly synthesized strand of 'daughter' DNA.
11. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4240]
Define Okasaki fragment.
12. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4243]
State the type of bonding which holds together the nucleotides in a single strand of DNA.
13. [Level 2/Molecular Diagnostics/Chapter 1 DNA/4244]
In DNA replication, state which strand is termed the 'leading strand'.
14. [Level 2/Molecular Diagnostics/Chapter 1 DNA/4247]
State the purpose of endonuclease.
15. [Level 1/Molecular Diagnostics/Chapter 1 DNA/4249]
State the nitrogen bases found in a molecule of DNA.
16. [Level 2/Molecular Diagnostics/Chapter 2 RNA/4252]
State a specific reason why messenger RNA differs from other types of RNA

17. [Level 1/Molecular Diagnostics/Chapter 2 RNA/4253]
State which of the nucleotides base-pair with one another in a molecule of RNA.
18. [Level 2/Molecular Diagnostics/Chapter 2 RNA/4254]
State the starting material, ending material, and the major enzyme that catalyzes the process of transcription.
19. [Level 2/Molecular Diagnostics/Chapter 2 RNA/4256]
State the enzyme responsible for performing transcription in bacteria.
20. [Level 1/Molecular Diagnostics/Chapter 2 RNA/4258]
Define 'anticodon loop'.
21. [Level 2/Molecular Diagnostics/Chapter 2 RNA/4264]
Define epigenetics.
22. [Level 2/Molecular Diagnostics/Chapter 2 RNA/4265]
Indicate how both RNA and DNA may be thought of as structurally similar.
23. [Level 2/Molecular Diagnostics/Chapter 3 Proteins/4267]
Identify the starting material, ending material, and the major enzyme that catalyzes the process of translation.
24. [Level 1/Molecular Diagnostics/Chapter 3 Proteins/4268]
Define the primary, secondary, tertiary, and quaternary levels of protein structure.
25. [Level 1/Molecular Diagnostics/Chapter 3 Proteins/4271]
Discuss the number of nucleotides required to determine the 'genetic code'.
26. [Level 1/Molecular Diagnostics/Chapter 3 Proteins/4272]
Define 'translation'.
27. [Level 1/Molecular Diagnostics/Chapter 3 Proteins/4273]
Define 'gene'.
28. [Level 2/Molecular Diagnostics/Chapter 3 Proteins/4278]
Explain what is meant by a 'molecular chaperone'.
29. [Level 2/Molecular Diagnostics/Chapter 3 Proteins/4279]
Differentiate between primary, secondary, tertiary, and quaternary protein structure.
30. [Level 2/Molecular Diagnostics/Chapter 3 Proteins/4280]
Identify what term is used to define a protein that has lost its tertiary structure.

Levels given in brackets at the beginning of the question objective indicate the level of difficulty for the actual question on this examination, NOT the level of difficulty for the stated objective. Levels of difficulty were developed using Bloom, et.al. Taxonomy of Educational Objectives. Also shown in the brackets are the Category of the question, the Topic of the question, and the number of the question in the database.

Explanation of Categories in the Cognitive Domain: (with Outcome-Illustrating Verbs)

Level 1: Recall

Knowledge of terminology; specific facts; ways and means of dealing with specifics (conventions, trends and sequences, classifications and categories, criteria, methodology); universals and abstractions in a field (principles and generalizations, theories and structures). Knowledge is (here) defined as the remembering (recalling) of appropriate, previously learned information.

* defines; describes; enumerates; identifies; labels; lists; matches; names; reads; records; reproduces; selects; states; views.

Level 2: Comprehension

Grasping (understanding) the meaning of informational materials.

* classifies; cites; converts; describes; discusses; estimates; explains; generalizes; gives examples; makes sense out of; paraphrases; restates (in own words); summarizes; traces; understands.

Level 3: Application

The use of previously learned information in new and concrete situations to solve problems that have single or best answers.

* acts; administers; articulates; assesses; charts; collects; computes; constructs; contributes; controls; determines; develops; discovers; establishes; extends; implements; includes; informs; instructs; operationalizes; participates; predicts; prepares; preserves; produces; projects; provides; relates; reports; shows; solves; teaches; transfers; uses; utilizes.

Taxonomy of educational objectives : the classification of educational goals ; / by a committee of college and university examiners ; Benjamin S. Bloom, editor [and others] IMPRINT New York : D. McKay Co., Inc., c1956-1964 (1971-72 printing) DESCRIPT. 2 v. in 1 : ill. ; 22 cm. NOTE Vol 2 by D R. Krathwohl and others

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