

## Specific Examination Objectives

Question Topic	Total	Average Difficulty
Ag/Ab Reactions	37	1.24
Cellular Communication	4	2.00
General Info	19	1.26
General Tests	1	1.00
History	2	1.00
Immune Response	4	1.75
Introduction	2	1.00

  

Exam ID	Total Questions	Average Difficulty
<b>CLS 311 Immunology #1</b>	69	1.30

*On this examination, the student will be expected to:*

1. [Level 2/Immunology/Ag/Ab Reactions/2901]  
Define the 'zone of equivalence'.
2. [Level 1/Immunology/Ag/Ab Reactions/2902]  
Define 'idiotypic variation' with respect to an immunoglobulin molecule.
3. [Level 1/Immunology/Ag/Ab Reactions/2904]  
List the characteristics required for a substance to be antigenic.
4. [Level 2/Immunology/Ag/Ab Reactions/2905]  
Define 'J chain'.
5. [Level 1/Immunology/Ag/Ab Reactions/2906]  
State the specificity of the immunoglobulin receptor on the surface of mast cells.
6. [Level 1/Immunology/Ag/Ab Reactions/2909]  
Define hapten.
7. [Level 1/Immunology/Ag/Ab Reactions/2910]  
Identify the class of immunoglobulin often described as 'incomplete' antibody.
8. [Level 1/Immunology/Ag/Ab Reactions/2911]  
Describe the normal primary antibody response.
9. [Level 1/Immunology/Ag/Ab Reactions/2912]  
Identify the antibody often associated with hypersensitivity, anaphylaxis, and allergy.
10. [Level 2/Immunology/Ag/Ab Reactions/2913]  
State the class of antibody which first appears in a primary immune response.
11. [Level 1/Immunology/Ag/Ab Reactions/2914]  
Contrast and Identify 'Primary' and 'Secondary' Lymphatic Tissues.
12. [Level 1/Immunology/Ag/Ab Reactions/2915]  
Define immunoglobulin valency.
13. [Level 1/Immunology/Ag/Ab Reactions/2916]  
Define 'epitope'.
14. [Level 1/Immunology/Ag/Ab Reactions/2917]  
Describe the various regions of the antibody molecule with respect to biologic specificity and antigen binding.

15. [Level 1/Immunology/Ag/Ab Reactions/2918]  
State the basic structure of an antibody molecule.
16. [Level 1/Immunology/Ag/Ab Reactions/2920]  
Identify the type of immunoglobulin heavy chain molecules.
17. [Level 1/Immunology/Ag/Ab Reactions/2921]  
Define 'isotype' with respect to immunoglobulins.
18. [Level 2/Immunology/Ag/Ab Reactions/2922]  
Identify the predominant antibody found in the plasma of a newborn infant.
19. [Level 1/Immunology/Ag/Ab Reactions/2923]  
Define antibody specificity.
20. [Level 2/Immunology/Ag/Ab Reactions/2924]  
State the major concepts of the clonal selection theory.
21. [Level 1/Immunology/Ag/Ab Reactions/2925]  
Identify the number of antigen binding sites (valency) present on each of the major classes of human immunoglobulin.
22. [Level 1/Immunology/Ag/Ab Reactions/2926]  
Define 'valency' with respect to immunoglobulin molecules.
23. [Level 1/Immunology/Ag/Ab Reactions/2928]  
State the characteristics required for a substance to be MORE or LESS antigenic.
24. [Level 1/Immunology/Ag/Ab Reactions/2929]  
State the type of heavy chain present in each of the immunoglobulin classes.
25. [Level 1/Immunology/Ag/Ab Reactions/2930]  
Differentiate between 'papain' and 'pepsin' cleavage of an immunoglobulin molecule.
26. [Level 2/Immunology/Ag/Ab Reactions/2931]  
Define 'Secretory Piece'.
27. [Level 1/Immunology/Ag/Ab Reactions/2933]  
State how the immunoglobulin classes may be distinguished.
28. [Level 1/Immunology/Ag/Ab Reactions/2934]  
Describe the structure of IgA immunoglobulin.
29. [Level 1/Immunology/Ag/Ab Reactions/2935]  
Identify the site at which the secretory piece is attached to a molecule of IgA.
30. [Level 2/Immunology/Ag/Ab Reactions/2936]  
Define antibody subclass.
31. [Level 2/Immunology/Ag/Ab Reactions/2937]  
Define idiotypic with respect to immunoglobulin molecules.
32. [Level 1/Immunology/Ag/Ab Reactions/2938]  
State the major class of immunoglobulin found in adult plasma/serum.
33. [Level 1/Immunology/Ag/Ab Reactions/2939]  
State the major class of immunoglobulin found in adult plasma/serum.
34. [Level 2/Immunology/Ag/Ab Reactions/2941]  
Contrast the primary antibody response from the secondary antibody response.
35. [Level 1/Immunology/Ag/Ab Reactions/2942]  
State the normal adult ratio of kappa to lambda light chains.

36. [Level 1/Immunology/Ag/Ab Reactions/2943]  
Identify the antibody class often associated with atopic allergy.
37. [Level 1/Immunology/Ag/Ab Reactions/2944]  
Describe the characteristics of a hapten.
38. [Level 2/Immunology/Cellular Communication/2994]  
State the purpose and function of the Human Leukocyte Antigens.
39. [Level 2/Immunology/Cellular Communication/2997]  
Identify the first step in any human Adaptive Immune Response.
40. [Level 2/Immunology/Cellular Communication/3001]  
State the characteristics of MHC class II proteins.
41. [Level 2/Immunology/Cellular Communication/3002]  
Explain the function of MHC class II antigen.
42. [Level 2/Immunology/General Info/3111]  
Explain the significance of the Thy 1.1 cellular marker.
43. [Level 1/Immunology/General Info/3115]  
State the lymphocyte type which expresses cell-surface immunoglobulins.
44. [Level 1/Immunology/General Info/3116]  
Contrast the differences between active humoral immunity and passive humoral immunity.
45. [Level 1/Immunology/General Info/3120]  
State the cell type which predominates in the germinal centers of lymph nodes.
46. [Level 1/Immunology/General Info/3121]  
Identify the site usually considered to be the Bursa Fabricus equivalent in man.
47. [Level 1/Immunology/General Info/3125]  
Define vaccination.
48. [Level 1/Immunology/General Info/3126]  
Cite a specific example of passive acquired immunity.
49. [Level 1/Immunology/General Info/3127]  
State the antibody class which provides post partum immunity to the newborn.
50. [Level 2/Immunology/General Info/3129]  
Cite a specific example of artificially induced passive immunity.
51. [Level 1/Immunology/General Info/3130]  
Describe the primary mediator of CMI (cell mediated immunity).
52. [Level 1/Immunology/General Info/3131]  
Explain the feature which is the primary differentiator for immunoglobulin subclasses.
53. [Level 1/Immunology/General Info/3132]  
Contrast Natural Immunity and Acquired Immunity.
54. [Level 2/Immunology/General Info/3136]  
Give a specific example of active artificial humoral immunity.
55. [Level 2/Immunology/General Info/3137]  
Describe the function of the LSC.
56. [Level 1/Immunology/General Info/3139]  
Describe the basic functions of T-cells.

57. [Level 1/Immunology/General Info/3140]  
Describe lymphocyte circulation through the human body.
58. [Level 1/Immunology/General Info/3143]  
Explain 'innate' or nonspecific immunity.
59. [Level 2/Immunology/General Info/3144]  
Contrast Artificially Acquired and Naturally Acquired Immunity.
60. [Level 1/Immunology/General Info/3145]  
State the usual locations and function of structures known as germinal centers.
61. [Level 1/Immunology/General Tests/3149]  
State the importance of the OKT1 or Thy1.1 antigen.
62. [Level 1/Immunology/History/3161]  
Define variolization.
63. [Level 1/Immunology/History/3162]  
Define attenuation.
64. [Level 2/Immunology/Immune Response/3259]  
State the first event which must occur before the human host can begin an adaptive immune response.
65. [Level 1/Immunology/Immune Response/3261]  
State the name of the genetic locus in man which governs the immune response.
66. [Level 2/Immunology/Immune Response/3262]  
Evaluate the significance of a rising antibody titer in an infection.
67. [Level 2/Immunology/Immune Response/3266]  
Contrast the secondary and primary immune responses.
68. [Level 1/Immunology/Introduction/3330]  
Define interferon.
69. [Level 1/Immunology/Introduction/3331]  
Define Serology.

**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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