

Specific Examination Objectives

Question Topic	Total	Average Difficulty
Autoimmunity	8	1.88
Complement	18	1.56
Cytokines	11	1.09
Hypersensitivities	23	1.35

Exam ID	Total Questions	Average Difficulty
CLS 311 Immunology #2	60	1.43

On this examination, the student will be expected to:

1. [Level 2/Immunology/Autoimmunity/2954]
Evaluate the clinical and laboratory findings in a patient with Cold Agglutinin Disease.
2. [Level 2/Immunology/Autoimmunity/2958]
Explain why corneal tissue may be transplanted from one individual to another without great concern for graft rejection.
3. [Level 3/Immunology/Autoimmunity/2959]
State the major characteristics of Hashimoto's thyroiditis.
4. [Level 3/Immunology/Autoimmunity/2960]
Describe the alternate pathway of Complement activation in a patient with renal disease and associated glomerulonephritis.
5. [Level 1/Immunology/Autoimmunity/2963]
Describe the development of male sterility caused by the appearance of anti-spermatozoal autoantibody.
6. [Level 1/Immunology/Autoimmunity/2965]
State the usual antigenic specificity of cold agglutinin autoantibody.
7. [Level 2/Immunology/Autoimmunity/2968]
Describe the clinical and laboratory features of Goodpasture's Syndrome.
8. [Level 1/Immunology/Autoimmunity/2969]
Describe the clinical and laboratory findings in a patient with Grave's Disease.
9. [Level 2/Immunology/Complement/3014]
Describe the alternate pathway of complement activation.
10. [Level 2/Immunology/Complement/3015]
Describe the procedure and interpretation of the complement fixation test.
11. [Level 3/Immunology/Complement/3018]
Describe the interpretation of the indicator phase of the complement fixation test.
12. [Level 1/Immunology/Complement/3019]
State two substances which will activate complement via the alternate pathway.
13. [Level 2/Immunology/Complement/3021]
State the sequence of activation of the components of Complement via the 'Classical' pathway.
14. [Level 1/Immunology/Complement/3022]
State which of the components of Complement is responsible for cellular lysis.

15. [Level 2/Immunology/Complement/3024]
Explain why a Complement fixation test should become positive very early during the course of a disease.
16. [Level 1/Immunology/Complement/3026]
State the sequence of activation of the components of Complement via the 'Classical' pathway.
17. [Level 3/Immunology/Complement/3027]
Describe the alternate pathway of Complement activation in a patient with renal disease and associated glomerulonephritis.
18. [Level 1/Immunology/Complement/3029]
Describe how Complement in serum may be inactivated in the clinical laboratory.
19. [Level 1/Immunology/Complement/3030]
State the clinical effects seen in a patient with hereditary C9 deficiency.
20. [Level 1/Immunology/Complement/3036]
Identify the components of Complement which are involved in the production of the MAC (membrane attack complex) .
21. [Level 1/Immunology/Complement/3037]
Identify the Complement component found in greatest concentration in human plasma/serum.
22. [Level 1/Immunology/Complement/3038]
Identify the components of Complement which are involved in the production of the Membrane Attack Complex.
23. [Level 1/Immunology/Complement/3039]
Identify the components of Complement which are involved in the production of C3 convertase.
24. [Level 1/Immunology/Complement/3040]
State the clinical effects seen in a patient with hereditary C9 deficiency.
25. [Level 1/Immunology/Complement/3041]
State which of the components of Complement act as opsonins.
26. [Level 3/Immunology/Complement/3044]
Discuss the effects on the complement system seen in a patient with hereditary angioedema.
27. [Level 1/Immunology/Cytokines/3062]
Define and discuss the biologic significance of IL-2.
28. [Level 1/Immunology/Cytokines/3064]
State the function of IL-1 in the synthesis of acute phase proteins.
29. [Level 1/Immunology/Cytokines/3072]
Define and discuss the biologic significance of Tumor necrosis factor alpha (TNF α).
30. [Level 1/Immunology/Cytokines/3075]
State which of the cytokines play a major role in transplanted tissue rejection.
31. [Level 1/Immunology/Cytokines/3076]
Define and discuss the biologic significance of Interferon.
32. [Level 1/Immunology/Cytokines/3077]
State the biologic functions of IL-8.
33. [Level 1/Immunology/Cytokines/3081]
Define and discuss the biologic significance of IL-12.
34. [Level 1/Immunology/Cytokines/3084]
Define and discuss the biologic significance of Interferon gamma.

35. [Level 1/Immunology/Cytokines/3085]
Define and discuss the biologic significance of Mannose binding protein.
36. [Level 1/Immunology/Cytokines/3086]
Explain how G-CSF might be helpful when given to a patient on chemotherapy.
37. [Level 2/Immunology/Cytokines/3088]
Define and discuss the biologic significance of IL-2.
38. [Level 1/Immunology/Hypersensitivities/3207]
State which of the current (Type 1-4) classifications of hypersensitivities applies to the old 'delayed' type hypersensitivity state.
39. [Level 1/Immunology/Hypersensitivities/3208]
Discuss the changes which are mediated by the various components released during a Type I hypersensitivity reaction.
40. [Level 1/Immunology/Hypersensitivities/3209]
Define Arthus Reaction.
41. [Level 1/Immunology/Hypersensitivities/3211]
Define atopic allergy.
42. [Level 1/Immunology/Hypersensitivities/3213]
State which of the current (Type 1-4) classifications of hypersensitivities applies to the old 'immediate' type hypersensitivity state.
43. [Level 2/Immunology/Hypersensitivities/3214]
Explain the mechanism and etiology of penicillin hypersensitivity.
44. [Level 1/Immunology/Hypersensitivities/3215]
State the antibody which is the prime mediator for the Type I hypersensitivities.
45. [Level 2/Immunology/Hypersensitivities/3216]
Evaluate clinical and laboratory data in a patient suffering from an immune complex disorder.
46. [Level 2/Immunology/Hypersensitivities/3217]
Explain why desensitization therapy would NOT be an appropriate treatment for a person suffering from anaphylaxis or acute atopic reactions.
47. [Level 1/Immunology/Hypersensitivities/3219]
Define, contrast, and give an example of each of the four types (Type 1-4) of Hypersensitivity reactions.
48. [Level 1/Immunology/Hypersensitivities/3221]
Evaluate clinical and laboratory data in a patient suffering from a Type IV Hypersensitivity reaction.
49. [Level 3/Immunology/Hypersensitivities/3222]
Evaluate clinical and laboratory data in a host suffering from anaphylaxis.
50. [Level 1/Immunology/Hypersensitivities/3223]
State which of the lymphocyte types mediates contact dermatitis.
51. [Level 1/Immunology/Hypersensitivities/3224]
Evaluate clinical and laboratory data in a patient suffering from a Type II Hypersensitivity reaction.
52. [Level 1/Immunology/Hypersensitivities/3225]
Evaluate clinical and laboratory data in a patient suffering from a Type IV Hypersensitivity reaction.

53. [Level 1/Immunology/Hypersensitivities/3226]
State which immunoglobulin class has an affinity for human mast cell surface receptors.
54. [Level 1/Immunology/Hypersensitivities/3229]
Evaluate clinical and laboratory data in a patient suffering from a Type III Hypersensitivity reaction.
55. [Level 1/Immunology/Hypersensitivities/3231]
Evaluate clinical and laboratory data in a patient suffering from a Type I Hypersensitivity reaction.
56. [Level 2/Immunology/Hypersensitivities/3232]
Define and discuss the biologic effects of serum sickness.
57. [Level 1/Immunology/Hypersensitivities/3233]
Describe the effects on macrophages which have been affected by the cytokine MAF (Macrophage Activating Factor).
58. [Level 1/Immunology/Hypersensitivities/3235]
Explain the rationale governing desensitization therapy.
59. [Level 1/Immunology/Hypersensitivities/3236]
State which antibody class is seen as a mediator of Type I hypersensitivity reactions.
60. [Level 3/Immunology/Hypersensitivities/3238]
Evaluate clinical and laboratory data in a patient suffering from a Type II Hypersensitivity reaction.

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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