1. HIV infects:
   a. Neurons
   b. Microglial cells
   c. Macrophages
   d. All of the above
   e. b. and c. above

2. HIV-associated dementia is often recognized:
   a. Within 6-12 months prior to onset of clinical AIDS
   b. At the time of initial infection
   c. Within one year after infection
   d. Shortly after initiation of HAART

3. Pathologists examine which of the following:
   a. Body fluids
   b. Biopsy specimens
   c. Autopsy specimens
   d. All of the above
   e. b. and c. above

4. CMV infection is common, but infrequently causes clinical disease:
   a. True
   b. False

5. Progressive multifocal leukoencephalopathy (PML) affects:
   a. Grey matter
   b. White matter
   c. The cerebellum
   d. All of the above
   e. b. and c. above

6. PML is caused by:
   a. Cytomegalovirus
   b. Papova virus
   c. Human papilloma virus
   d. HIV
   e. Chlamydia
7. Brain lesions in HIV infection are caused by:
   a. Kaposi’s sarcoma
   b. Lymphoma
   c. Toxoplasmosis
   d. All of the above
   e. b. and c. above

8. The severity of dementia in HIV-infected individuals reflects the extent of pathology in the brain:
   a. True
   b. False

9. Immune reconstitution syndrome causes which of the following brain lesions?
   a. Demyelination
   b. Increase in inflammatory cells
   c. Infection of neurons by HIV
   d. All of the above
   e. a. and b. above

10. Opportunistic infections of the brain continue to be a major problem in the era of antiretroviral treatment:
    a. True
    b. False

11. Currently, peripheral neuropathies in HIV-infected persons are most likely to be caused by:
    a. CMV
    b. HPV
    c. Antiretroviral drugs
    d. Papaova virus
    e. Chlamydia

12. The diagnosis of HIV dementia requires which of the following?
    a. Changes in specific cognitive domains
    b. Marked interference with activities of daily living
    c. Reduction in attention span, ability to abstract and to learn new skills
    d. All of the above
    e. a. and b. above

13. Antiretroviral therapy has resulted in:
    a. Decreased incidence of all types of primary HIV neuropsychiatric disease
    b. Incidence of dementia
    c. Survival after a diagnosis of dementia
    d. All of the above
    e. a. and b. above
14. Less than 50% of AIDS patients who die have evidence of neuropathology at the time of death:
   a. True
   b. False

15. Why do therapies for HIV infection fail?
   a. Drug toxicities that mandate discontinuation of treatment
   b. Resistance to drugs due to mutation of the HIV virus
   c. Failure to clear all reservoirs
   d. All of the above

16. The most common manifestation associated with HIV infection globally is:
   a. PCP
   b. CMV
   c. TB
   d. Toxoplasmosis
   e. Histoplasmosis

17. Currently, viral load is considered a better indicator of when to initiate antiretroviral therapy than the CD4+ level:
   a. True
   b. False

18. Therapy with antiretroviral drugs can reverse HIV-associated dementia:
   a. True
   b. False

19. The onset of dementia is usually first recognized by:
   a. A physician during routine examination
   b. Family and friends
   c. Professors

20. Early dementia is most often confused with:
   a. Depression
   b. Drug abuse
   c. Mania and psychosis
   d. Schizophrenia

21. Markers of cerebrovascular disease are a good predictor of poorer cognitive functioning:
   a. True
   b. False

22. Hairy leukoplakia of the oral cavity generally does NOT require treatment:
   a. True
   b. False
23. All of the following are common manifestations of acute retroviral syndrome EXCEPT:
   a. Fever
   b. Neurologic symptoms
   c. Lymphadenopathy
   d. Pharyngitis
   e. Rash

24. The necessary factor in the etiology of Kaposi’s sarcoma is:
   a. Smoking
   b. Human herpes virus 8
   c. Herpes zoster
   d. Cytomegalovirus
   e. Herpes simplex

25. Most cancers associated with HIV infection are induced by viruses:
   a. True
   b. False

26. In HIV-associated tuberculosis cases, treatment with antiretrovirals should begin:
   a. Before antiretroviral drugs are started
   b. After antiretroviral drugs are started
   c. Concurrently with antiretroviral drugs
   d. Doesn’t make any difference

27. HIV-associated tuberculosis requires multi-drug therapy in addition to antiretroviral therapy:
   a. True
   b. False

28. Immune reconstitution disease is associated with:
   a. A decline in CD4+ cells
   b. An increase in CD+ cells
   c. An increase in viral load
   d. Low levels of antiretroviral drug in the blood

29. The current recommendation is to initiate antiretroviral therapy when the CD4+ level reaches:
   a. 200
   b. 250
   c. 300
   d. 350
   e. 500
30. The minimum level of adherence to antiretroviral drugs required to have better than a 50% probability of achieving an undetectable level of viral RNA by three months is:
   a. 50%
   b. 70%
   c. 80%
   d. 95%

31. The current goal of treatment in 2011 is to:
   a. Cure the patient
   b. Eliminate HIV from the patient
   c. **Maintain undetectable levels of viral RNA**
   d. Restore CD4+ levels to pre-HIV-infection levels
   e. All of the above

32. What are the cellular components of the innate immune system?
   a. NK cells and granulocytes
   b. Granulocytes and antigen-presenting cells
   c. **NK cells, granulocytes, and antigen-presenting cells**
   d. None of the above

33. Which of the following is **NOT** a component of the innate immune system?
   a. NK cells
   b. Granulocytes
   c. **CD8+ cells**
   d. Dendritic cells
   e. Macrophages

34. Self/non-self recognition is an essential component of acquired immunity:
   a. True
   b. False

35. Which of the following cells of the immune system carry the major burden of clearing HIV?
   a. **CD8+**
   b. CD4+
   c. CD3+
   d. B cells
   e. CD57+

36. The components of the immune system communicate with each other through:
   a. Cytokines
   b. Chemokines
   c. Glycoproteins
   d. Red blood cells
   e. **a. and b. above**
37. Antibodies are primarily effective against extracellular pathogens:
   a. True
   b. False

38. Cytotoxic cells require cell-to-cell contact to kill infected CD4+ cells:
   a. True
   b. False

39. HIV establishes contact with its primary target cell first through which of the following?
   a. CCR-5 receptor
   b. CD4 receptor
   c. CD8 receptor
   d. CRCX4 receptor
   e. Fusion domain

40. Antigen-presenting cells:
   a. Express class II MHC molecules
   b. Provide co-stimulatory signals necessary for activation of T cells
   c. Stimulate production of antibodies by B cells
   d. All of the above
   e. a. and b. above

41. Which of the following is required for activation of T cells?
   a. Only CD3
   b. Only CD28
   c. Both a and b
   d. Neither of the above

42. The diversity of the immune response is maintained by the distribution of:
   a. HLA alleles on chromosome 6
   b. B cells
   c. NK cells
   d. Granulocytes
   e. CD-57 receptor

43. The loss of tolerance to one’s own tissues is called:
   a. Immune collapse
   b. Autoimmunity
   c. Tolerance
   d. Antibody collapse
   e. Antigen collapse

44. Immune responses are most efficient in:
   a. Lymph nodes
   b. Esophagus
   c. Liver
   d. Pancreas
   e. Kidney
45. The first acquired immune cell to respond defensively to HIV infection is:
   a. CD4+
   b. **CD8+**
   c. CD57
   d. NK cells
   e. Macrophages

46. How long does it take for the acquired immune response to respond?
   a. 1-2 days
   b. **12-14 days**
   c. 30 days
   d. 60 days
   e. Several years

47. The first response of T cells to an antigen is:
   a. Differentiation
   b. **Proliferation**
   c. Tolerance
   d. Mutation

48. Why do vigorous CD8 cell responses in chronically infected HIV-positive individuals fail to eliminate the virus?
   a. CTL exhaustion
   b. **Epitope escape**
   c. Suboptimal CTL
   d. Absence of dendritic cells

49. The CD4 binding site of HIV is hidden from antibodies within a depression in the V1V2 loops:
   a. **True**
   b. False

50. Antigen-presenting cells:
   a. Can facilitate HIV infection of CD4+ cells
   b. **Activate CD4+ cells**
   c. Activate CD8+ cells
   d. **All of the above**
   e. b. and c. above

51. All retroviruses have which of the following genes?
   a. Gag
   b. Pol
   c. Env
   d. LTR
   e. **All of the above**
52. Binding of receptors on which site of the provirus stimulates gene expression and replication?
   a. TAT
   b. TAR
   c. NEF
   d. LTR

53. What percent of lymphocytes are present in the blood?
   a. 1%
   b. 10%
   c. 25%
   d. 50%
   e. 75%

54. Humans do not make neutralizing antibody to HIV:
   a. True
   b. False

55. The highest incidence of HIV infections in 2009 occurred in which of the following global areas?
   a. Sub-Saharan Africa
   b. North Africa
   c. South East Asia
   d. India
   e. China

56. The highest risk group for HIV infection is:
   a. Nuns
   b. Plasma donors
   c. 15-24 year olds
   d. Drug users
   e. Professors

57. In which of the following areas does the number of females infected exceed the number of males?
   a. Sub-Saharan Africa
   b. North Africa
   c. South East Asia
   d. India
   e. China

58. The “reporting fraction” for HIV is lowest in which of the following areas?
   a. Sub-Saharan Africa
   b. South America
   c. South East Asia
   d. India
   e. China
59. Among new HIV infections occurring globally, which of the following statements is true?
   a. About 97% are in low and middle-income countries
   b. Almost 51% are among women
   c. Both a and b are correct
   d. Neither is correct

60. The rate of new HIV diagnoses is highest in which section of the United States?
   a. Northeast
   b. Southeast
   c. Midwest
   d. Southwest
   e. Far west

61. The major mode of spread of HIV in Los Angeles is:
   a. Heterosexual
   b. Male-male sex
   c. Injection drug use
   d. Female sex workers

62. The prevalence of HIV/AIDS infection in Los Angeles is highest in which ethnic group?
   a. European American
   b. Asian-Americans
   c. Hispanic-Americans
   d. Native Americans
   e. African-Americans

63. The most common route of transmission of HIV infection among males in the United States is:
   a. Injecting drug users
   b. Heterosexual route
   c. Men having sex with men
   d. Injecting drug users and men having sex with men

64. The biological factor that promotes transmission of HIV infection is:
   a. Viral load
   b. Co-existence of other STDs
   c. Circumcision status
   d. All of the above

65. The “normal” ratio of CD4:CD8 cells in uninfected individuals is:
   a. 1:1
   b. 2:1
   c. 3:1
   d. 5:1
66. Pooling is cost-effective for reducing costs of testing when the prevalence of HIV is:
   a. Very high
   b. High
   c. Moderate
   d. Low

67. The ratio of HIV infections to AIDS cases is highest at what stage of an epidemic in a country?
   a. Early
   b. Middle
   c. Late
   d. Constant throughout the course of the epidemic

68. During the first two weeks after HIV infection (window period), which of the following is most likely to be present in blood?
   a. Only IgM antibody
   b. **Only antigen**
   c. Both IgM antibody and antigen
   d. None of the above

69. Which of the following is the most important predictor of rate of progression of HIV infection to AIDS?
   a. **Viral load 6-12 months after HIV infection**
   b. Viral load at late stage of HIV infection
   c. CD4 cell counts
   d. Co-existence of other diseases

70. Pathogen translocation contributes to chronic activation of CD4 cells:
   a. **True**
   b. False