

CHOOSE THE SINGLE BEST ANSWER FOR QUESTIONS 1 - 72.

1. Which of the following is a fibrillar, antiphagocytic structure anchored to the peptidoglycan of *Streptococcus pyogenes*?
 - A. Streptolysin O
 - B. Protein G
 - C. M protein
 - D. Hyaluronic acid
 - E. Lancefield antigen

2. Colonization, which is often the first step in the initiation of infection, depends on the organism's:
 - A. Ability to produce toxins.
 - B. Ability to produce adhesins.
 - C. Ability to invade tissues.
 - D. Virulence.
 - E. Resistance to opsonization.

3. The hemagglutinin of orthomyxoviruses and paramyxoviruses has all of the following functions **EXCEPT**:
 - A. Attachment of virus to susceptible cells
 - B. Agglutination of red blood cells
 - C. Cleavage of F (fusion) protein
 - D. Stimulation of protective viral-specific antibodies
 - E. Recognition of sialic acid receptors.

4. Which of the following pathogens is a major cause of conjunctivitis and requires hematin and NAD for laboratory cultivation?
- A. *Streptococcus pneumoniae*
 - B. *Haemophilus influenzae*
 - C. *Moraxella lacunata*
 - D. *Staphylococcus aureus*
 - E. *Streptococcus pyogenes*
5. *Staphylococcus aureus* is an important nosocomial pathogen that can persist in the hospital environment as:
- A. Disinfectant-resistant spores
 - B. Normal flora of hospital personnel
 - C. Biofilms on doorknobs
 - D. Contaminants of pharmaceuticals
6. A 20-year-old woman presents to the emergency room with a temperature of 40°C and low blood pressure (90/60 mm Hg). She has a widespread rash over her trunk. A tampon is discovered during her physical examination and upon removal reveals a red and inflamed vaginal mucosa. Culture from the tampon grows Gram positive, catalase positive cocci.

Which of the following mechanisms is most likely responsible for the patient's symptoms?

- A. Superantigen-induced cytokine release
- B. Cross-reactivity with M protein
- C. ADP-ribosylation of elongation factor 2
- D. Complement-like cytolysis of white blood cells
- E. Protein G-mediated binding of Fc receptors

7. Which of the following respiratory pathogens invades alveolar macrophages by the process of coiling phagocytosis?
- A. *Bordetella pertussis*
 - B. *Histoplasma capsulatum*
 - C. *Streptococcus pneumoniae*
 - D. *Legionella pneumophila*
 - E. *Pneumocystis carinii*
8. A 16 year old girl presented to the emergency department with a 1 day history of painful swelling of the right leg. She had been kicked in the lower leg 2 days ago, suffering a superficial skin abrasion. She has a low grade fever and there is a well demarcated zone of erythema (redness) and tenderness on her leg.

The MOST LIKELY cause of her infection is:

- A. *Haemophilus influenzae*
 - B. *Pseudomonas aeruginosa*
 - C. *Corynebacterium hemolyticum*
 - D. *Staphylococcus epidermidis*
 - E. *Streptococcus pyogenes*
9. A primary virulence factor of *Pseudomonas aeruginosa* catalyzes which of the following enzymatic reactions?
- A. Fibrinogen → Fibrin
 - B. $\text{NAD} + \text{EF-2} \leftrightarrow \text{ADPR-EF2} + \text{nicotinamide} + \text{H}^+$
 - C. $\text{NAD} + \text{Gi} \leftrightarrow \text{ADPR-Gi} + \text{nicotinamide} + \text{H}^+$
 - D. $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$

10. Many people suffer from recurrent herpes simplex virus infections such as cold sores, recurrent eye infections and recurrent genital lesions. These recurrences are the result of:
- A. Reactivation of latent virus.
 - B. Gradual fading of the immune response to herpes simplex virus.
 - C. Reinfection from other infected individuals.
 - D. Occasional flare-up of persistent infections at the site of the recurrent lesions.
11. Lipopolysaccharide (LPS) from Gram-negative bacteria is a key mediator of host inflammatory responses. Which part of the LPS molecule is responsible for its toxicity?
- A. Repeating sugar residues (O antigens)
 - B. Core sugars
 - C. Lipid A
 - D. All components are equally toxic
12. Which of the following virulence factors produced by *Streptococcus pneumoniae* prevents deposition of the C3b complement component?
- A. Secretory IgA protease
 - B. Capsule
 - C. Pneumolysin
 - D. Teichoic acid
 - E. M protein

13. Which one of the following statements most accurately describes a Koch's postulate?
- A. Infection with a pathogen always results in disease.
 - B. The organism should be recovered from infected persons and maintained in pure culture.
 - C. Pure culture of the organism should cause disease only when inoculated into immunocompetent hosts.
 - D. If the primary host is reinoculated, it will always result in disease.
14. The production of pertussis toxin is genetically regulated by which of the following mechanisms?
- A. Lysogenic conversion
 - B. Repression by the Fur protein and iron complex
 - C. A plasmid-borne structural gene regulated by a chromosomal-encoded repressor
 - D. Catabolite repression
 - E. Two-component signal transduction
15. Important steps in the pathogenesis of infective endocarditis include all of the following **EXCEPT**:
- A. Transient bacteremia
 - B. Turbulent blood flow
 - C. Low flow states such as secundum atrial defects.
 - D. Nonbacterial thrombotic endocarditis
 - E. Deposition of platelets and fibrin

16. A mutation which deletes the operator region of the *lac* operon would induce which of the following effects?
- A. Lacking the RNA polymerase binding site, the entire operon would be nonfunctional.
 - B. The operon would be unresponsive to the catabolite activator protein.
 - C. β -galactosidase would be synthesized constitutively (continuously).
 - D. This mutation would be lethal to *E. coli*.
 - E. β -galactosidase synthesis would be suppressed at all lactose concentrations.
17. Attachment of parainfluenza viruses to susceptible cells is dependent upon which of the following surface glycoproteins?
- A. HN protein
 - B. G protein
 - C. F₀ protein
 - D. F₁ protein
 - E. F₂ protein
18. Of the following, the chronicity of tuberculosis is likely due to:
- A. Adverse effect of delayed hypersensitivity upon protective immunity
 - B. Extracellular location of bacilli in caseous lesions
 - C. Failure to induce a cell mediated immune response
 - D. Granuloma formation
 - E. Induction of an antibody immune response

19. A previously healthy 51 year old woman is admitted to the hospital with a 3 day history of productive cough, fever, chills and chest pain. A chest X-ray reveals a lobar consolidation in the left lower lobe and a Gram stain of her sputum reveals Gram-positive lancet shaped diplococci.

Which one of the following statements about this patient is TRUE?

- A. The organisms causing her disease usually reside in the trachea.
 - B. Pneumonia in a patient her age should prompt an investigation for an immunologic problem.
 - C. Her infection can almost certainly be treated effectively with antibiotics.
 - D. Since she has no known underlying disease, she probably wouldn't have benefited from immunization against this organism.
 - E. Since *Haemophilus* infections are unusual in adults, she should be evaluated for an underlying disease.
20. Which of the following modes of transmission is the most difficult to control?
- A. Aerosol
 - B. Sexual contact
 - C. Fecal-oral
 - D. Vector-borne person to person
 - E. Vector-borne animal to person
21. Infection with Parvovirus B19 is the cause of which one of the following diseases?
- A. Hand, foot and mouth disease
 - B. Roseola infantum
 - C. Transverse myelitis
 - D. Erythema infectiosum
 - E. Viral hepatitis

22. Viruses **differ** from bacteria because viruses:
- A. Contain both RNA and DNA
 - B. Are metabolically inert
 - C. Are antigenic
 - D. Are transmissible
 - E. Can mutate
23. A 70 year old man is admitted to the intensive care unit for a very serious bacterial infection.
- Which one of the following statements is most accurate?
- A. The patient's innate protective systems will prevent death.
 - B. His immune system, with or without antibiotics, will ameliorate the signs of infection which will then become chronic.
 - C. Organisms may be passed to another host, leading to recovery of the patient.
 - D. The infecting agent may proliferate to such an extent that it leads to the patient's death.
 - E. Once the bacterial infection is eradicated by the appropriate antibiotics, the signs and symptoms of disease will cease immediately.
24. Which of the following life cycle stages of *Plasmodium falciparum* is injected into the human bloodstream by the *Anopheles* mosquito?
- A. Schizont
 - B. Trophozoite
 - C. Hypnozoite
 - D. Merozoite
 - E. Sporozoite

25. Many pathogenic fungi are dimorphic. As free-living fungi, the organisms exist as filamentous hyphae, but when they invade human tissue they assume the form of a:
- A. Yeast
 - B. Microconidium
 - C. Macroconidium
 - D. Ascospore
 - E. Mycelial plug
26. Which of the following infectious agents do NOT cause severe respiratory disease?
- A. Parainfluenza viruses
 - B. *Streptococcus pneumoniae*
 - C. Rhinoviruses
 - D. Adenoviruses
 - E. Hantaan virus
27. Which of the following is an example of direct, intergenic suppression of a mutation?
- A. A tRNA which translates the UAG stop codon as a tyrosine.
 - B. A pyrimidine insertion which is corrected by the downstream deletion of a purine.
 - C. Repair of ultraviolet irradiation-induced DNA damage by RecBCD.
 - D. A membrane transport mutation which restricts cytoplasmic magnesium concentrations.
 - E. Constitutive expression of the *lac* operon due to loss of the catabolite activator protein.

28. Bacteria associated with osteomyelitis reach relevant regions of bone from their sites of primary infection:
- A. Primarily *via* intermediate transmission through the gastrointestinal system
 - B. By routes which vary widely according to the particular species of infecting organism
 - C. By means which are currently only poorly understood
 - D. Primarily *via* the circulatory system
29. Most enveloped viruses:
- A. Have helical symmetry
 - B. Have cubic symmetry
 - C. Consist of only protein and nucleic acid
 - D. Do not contain enzymes
30. A 20 year old previously healthy college student presents with a fever, and a non-productive cough. Sputum Gram stain reveals white blood cells but no organisms are seen.
- This case of pneumonia is most likely caused by which one of the following pathogens?
- A. *Streptococcus pneumoniae*
 - B. *Streptococcus pyogenes*
 - C. *Haemophilus influenzae*
 - D. *Mycoplasma pneumoniae*
 - E. *Legionella pneumophila*
31. Which one of the following virulence factors is encoded by a plasmid-borne gene?
- A. Diphtheria toxin
 - B. Heat labile toxin of enterotoxigenic *E. coli*
 - C. Streptococcal pyrogenic exotoxin A
 - D. Botulinum toxin of *Clostridium botulinum*
 - E. Alpha toxin of *E. coli*

32. All of the following statements about mycotic aneurysms are true **EXCEPT**:
- A. They always present clinically within one week of an episode of endocarditis.
 - B. They occur at bifurcation points in the vessel.
 - C. They can rupture, causing intracranial hemorrhage.
 - D. They can be caused by direct bacterial invasion of the atrial wall with abscess formation.
 - E. Embolic occlusion of the vasovasorum is one pathogenic mechanism.
33. Positive stranded RNA viruses have all of the following properties **EXCEPT**:
- A. Viral RNA dependent polymerase is in the virion
 - B. The viral RNA acts as mRNA
 - C. Viral proteins can be synthesized directly after uncoating of the RNA
 - D. Synthesis of proteins occur in the cytoplasm
 - E. Synthesis of nucleic acids occurs in the cytoplasm
34. Tinea capitis is the common name for circular bald patches caused by invasion of the hair shaft by the arthroconidia of which one of the following fungal pathogens?
- A. *Candida albicans*
 - B. *Histoplasma capsulatum*
 - C. *Malassezia furfur*
 - D. *Sporothrix schneckii*
 - E. *Trichophyton tonsurans*

35. One major difference between reactive arthritis and septic arthritis is:
- A. The etiologic agent responsible for septic arthritis is usually identifiable *via* laboratory culture, whereas this is not the case in reactive arthritis
 - B. Septic arthritis always takes an acute form, whereas reactive arthritis is always chronic in nature
 - C. There are no major differences between the two diseases in clinical presentation, etiologic agent(s) involved, or therapeutic regimens employed in treatment
 - D. For reactive arthritis, all organisms causing the disease have been well-defined, whereas for septic arthritis this is not the case
36. A 63 year old woman has surgical repair of a fractured hip. Several days after the surgery she develops a low grade fever and a small amount of purulent drainage is seen coming from the incision, which is also noted to be erythematous (reddened).

Which one of the following statements regarding this case is correct?

- A. Gram negative bacilli usually cause this kind of infection.
- B. Mixed anaerobic infection is the usual cause of this kind of infection.
- C. Penicillin should be used to treat this infection since these organisms are always susceptible to penicillin.
- D. *Staphylococcus aureus* is the most likely cause of this infection.
- E. *Streptococcus viridans* is the most likely cause of this infection.

37. Which of the following traits protect the erythrocytes of West Africans from infection with *Plasmodium vivax* by eliminating the specific surface receptor for the pathogen?
- A. Heterozygous sickle cell
 - B. Homozygous sickle cell
 - C. α -thalassemia
 - D. Lack of Duffy red blood cell antigen
 - E. Deficient glucose-6-phosphate dehydrogenase
38. Negative stranded RNA viruses have which of the following properties:
- A. The RNA genome acts directly as mRNA
 - B. Synthesis of viral proteins occurs in the nucleus
 - C. The viral RNA polymerase is carried in the virion
 - D. Viral DNA is transcribed from the viral RNA genome
39. A 62 year old man with a long history of smoking and diabetes is admitted for pneumonia. His past history also includes a splenectomy after a motor vehicle accident. His chest X-ray reveals an infiltrate in the right upper lobe. Sputum Gram stain is positive for numerous white blood cells and Gram positive, lancet-shaped diplococci. His blood culture is also positive for the same organism.

Which one of the following statements regarding this case is CORRECT?

- A. The causative organism is *Legionella pneumophila*
- B. He is a high risk patient because of his previous splenectomy.
- C. Because *Haemophilus* is so contagious, any family members who have not yet been vaccinated should have the vaccine.
- D. Since most staphylococci produce beta-lactamase, he should be treated with a beta-lactamase-resistant antibiotic.

40. Mycobacteria are relatively resistant to common disinfectants because the organism:
- A. Has a cell wall with a Gram positive structure
 - B. Has a cell wall with a high lipid content
 - C. Has a sporogenous life cycle
 - D. Is catalase positive
 - E. Replicates very slowly
41. RNA polymerase composed of the alpha-beta subunits and an alternate sigma factor would have which of the following functions?
- A. Initiate transcription of a gene for a specialized function such as the heat shock response.
 - B. Terminate transcription by inducing dissociation of the RNA polymerase at a stem-loop.
 - C. Terminate transcription by inducing dissociation of the RNA polymerase at a pause site.
 - D. Regulate catabolite repression of the *lac* operon.
42. A 79 year old man has been in intensive care for several weeks following a motor vehicle accident. As the infectious disease specialist, you are asked to help the patient's doctors prevent the development of a pneumonia.
- Which one of the following procedures would you recommend?
- A. Insert a nasogastric tube to facilitate feeding of the patient.
 - B. Immediately begin antibiotics as prophylaxis against infection.
 - C. Place the patient on H2 blockers, so he doesn't aspirate Gram-negative organisms.
 - D. Remove the patients endotracheal tube as soon as possible.
 - E. Instill antibiotics into his endotracheal tube until it can be removed.

43. Which of the following is an etiologic agent of atypical pneumoniae which colonizes the bronchial epithelium and damages host tissue by secreting hydrogen peroxide?
- A. *Streptococcus pneumoniae*
 - B. *Histoplasma capsulatum*
 - C. *Mycoplasma pneumoniae*
 - D. *Pneumocystis carinii*
 - E. *Chlamydia pneumoniae*

44. A 57 year old man is admitted to the hospital complaining of high fever, dry cough, and shortness of breath. A chest X-ray shows an infiltrate on the left side. The patient has a long history of smoking and was previously informed that his lung function is impaired. Sputum is difficult to obtain, but the tiny sample reveals white blood cells and no bacteria.

Which one of the following statements regarding this case is CORRECT?

- A. Penicillin can still be used because even resistant *Streptococcus pneumoniae* can be treated with penicillin.
- B. A broad-spectrum cephalosporin should be started since the Gram stain results make the diagnosis difficult.
- C. Erythromycin should be started because the clinical picture and absence of organisms on Gram stain are consistent with *Mycoplasma* infection.
- D. Blood should be sent for serologic diagnosis and antibiotic withheld until a diagnosis is confirmed.
- E. Erythromycin should be started because the clinical picture and absence of organisms on Gram stain are consistent with *Legionella* infection.

45. An Hfr strain of *E. coli* with the F episome integrated between the *his* and *pro* genes is mated with an F⁻ strain. The F⁻ strain could be converted to which of the following phenotypes?
- A. Hfr, His⁺, Pro⁺
 - B. F⁻, His⁺, Pro⁺
 - C. F⁺, His⁺, Pro⁺
 - D. F⁻, His⁺, Pro⁻
 - E. F⁺, His⁺, Pro⁻
46. The function of viral nucleic acids is:
- A. Protecting the virus from the environment
 - B. Stimulation of immune response
 - C. Encoding genetic information
 - D. Polymerizing proteins
47. Which one of the following statements regarding pericarditis is TRUE?
- A. It is rarely caused by *Mycobacterium spp.*
 - B. Patients present with retrosternal chest pain aggravated by lying flat.
 - C. The etiology is always viral.
 - D. It is an inflammation of the endocardium.
 - E. Patients have a heart murmur on examination.

48. The patient was a 34-year-old man who noted the onset of fever and chills the past week. He reported that his urine had darkened becoming almost black. The patient was severely anemic. His history revealed travel to Africa 4 months ago for which he had taken chloroquine as prophylaxis. Forty-eight hr. after admission, the patient lapsed into a coma and died.

Which of the following pathogens was MOST LIKELY responsible for this patient's death?

- A. *Plasmodium vivax*
 - B. *Plasmodium falciparum*
 - C. *Plasmodium ovale*
 - D. *Plasmodium malariae*
 - E. *Babesia microti*
49. Pandemics of influenza are caused by which of the following:
- A. Reassortment of viral RNA pieces in multiply infected cells.
 - B. A point mutation in one of the viral RNA pieces
 - C. Antibody-virus complexes which facilitate viral entry
 - D. Mutations in the M protein of influenza B viruses
 - E. Reassortment of viral polymerases in multiply infected cells
50. Which of the following statements concerning varicella-zoster virus (VZV) is FALSE?
- A. Shingles is caused by a reactivation of latent varicella-zoster virus.
 - B. Primary VZV infection is usually more severe in adults than in children.
 - C. There is no effective vaccine for prevention of VZV infection.
 - D. Varicella is usually spread by the respiratory route.
 - E. A persistent neuralgia may follow an occurrence of shingles.

51. A US born 45 year old man consults his physician due to a chronic cough. Chest X-ray reveals an opacity in the left lower lobe. A tuberculin skin test is done, and the result is positive. You would infer from these data that the patient:
- A. Has active pulmonary tuberculosis
 - B. Has been exposed to environmental Mycobacteria
 - C. Has been infected with *Mycobacterium tuberculosis*
 - D. Has been immunized with BCG
 - E. Is immune to tuberculosis, precluding active *Mycobacterium tuberculosis* infection in the future
52. Which one of the following is an example of molecular mimicry used by a pathogen to evade the host immune response?
- A. The display of Fc receptors by a virus-infected cell.
 - B. Antigenic variation by influenza virus.
 - C. Antigenic variation by the African trypanosomes.
 - D. Production of a host-like protein by *Streptococcus pyogenes*.
 - E. The induction of anergy by *Coccidioides immitis*.
53. Which one of the following correctly describes the sole virulence factor of *Corynebacterium diphtheriae*?
- A. Hyaluronic acid capsule which facilitates immune system evasion
 - B. Superantigen which cross-links T-cell receptor and MHC class II inducing cytokine release
 - C. Encoded by a plasmid-borne gene
 - D. AB toxin which ADP-ribosylates elongation factor 2
 - E. AB toxin which ADP-ribosylates Gi protein

54. The synthesis of viral proteins and nucleic acids occurs during which stage of the virus growth cycle:
- A. Eclipse
 - B. Attachment
 - C. Penetration
 - D. Uncoating
 - E. Release
55. Which of the following ocular pathogens causes chronic follicular conjunctivitis leading to the formation of scar tissue in the eyelid and corneal scarring by the eyelashes?
- A. *Toxocara canis*
 - B. *Staphylococcus aureus*
 - C. *Moraxella lacunata*
 - D. *Pseudomonas aeruginosa*
 - E. *Chlamydia trachomatis*
56. The patient is a 63 year old woman who presented with a 2 day history of cough, fever, chills, headache and chest pain. A Gram stain of her sputum reveals Gram-positive cocci in chains. The most likely cause of her pneumonia is:
- A. *Streptococcus pyogenes*
 - B. *Haemophilus influenzae*
 - C. *Moraxella spp.*
 - D. *Chlamydia pneumoniae*
 - E. *Legionella pneumophila*

57. Which of the following pathogens fits the following description?
Causative agent of stomatitis especially in the immunocompromised. Invades mucosa through the formation of invasive hyphae with tip-associated proteinase activity.
- A. Viridans *Streptococci*
 - B. *Bacteroides fragilis*
 - C. *Actinomyces israelii*
 - D. *Candida albicans*
 - E. *Histoplasma capsulatum*
58. Entry of viruses can occur by all of the following mechanisms **EXCEPT**:
- A. pH dependent fusion at plasma membrane
 - B. Receptor mediated endocytosis
 - C. Direct penetration
 - D. Cell to cell fusion
 - E. Cellular lysis
59. Which one of the following exotoxins has a pathogenic mechanism most similar to bacterial endotoxin?
- A. Pertussis toxin
 - B. Diphtheria toxin
 - C. *Staphylococcus aureus* alpha toxin
 - D. Streptolysin O
 - E. Streptococcal pyrogenic exotoxin A

60. A 6 year old child was sent home from school two days ago when his teacher noted that he was developing a pruritic (itchy) rash. The lesions are scattered over his entire body and seem to be in different stages. Some appear vesicular, some are pustular, and some seem to have a crust covering them.

Which one of the following statements regarding this case is CORRECT?

- A. He should be treated with an antibiotic with activity against Gram-positive cocci.
 - B. This disease is preventable by vaccine.
 - C. Although there is a vaccine for this disease, it is recommended only for patients with known underlying diseases.
 - D. He should return to school since even if other children acquire his infection, it will help them develop protective immunity.
 - E. There is still no effective drug therapy for treatment of the disease.
61. Recurrent infections with *Streptococcus pyogenes* is possible due to:
- A. The capacity of protein G to remove type specific antibodies from circulation.
 - B. The capacity of protein F to remove type specific antibodies from circulation
 - C. The proteolytic activity of C5a peptidase on complement.
 - D. Leukocyte depletion caused by Streptolysin O
 - E. Antigenic variability at the amino terminus of M protein.
62. All of the following can be viral components **EXCEPT**:
- A. Capsomer
 - B. Lipid membrane
 - C. Glycoprotein projections
 - D. Mitochondria
 - E. Nucleocapsid

63. Which of the following respiratory pathogens causes Valley fever and may be accompanied by T-cell anergy during chronic infection?
- A. *Coccidioides immitis*
 - B. *Pneumocystis carinii*
 - C. *Legionella pneumophila*
 - D. *Blastomyces dermatitidis*
 - E. *Histoplasma capsulatum*

64. A 27 year-old Caucasian female presents with a 4 day history of moderate pain in her left knee. She has no known history of genital infection. She is currently being treated by a specialist for severe allergies. Her history reveals a mild case of food poisoning three weeks earlier.

How would you proceed to determine the cause of this individual's knee pain?

- A. Get into immediate contact with the allergist and ask what the specific allergen is.
 - B. Have a blood culture done to assess for *S. aureus* and/or other organisms
 - C. Refer to a rheumatologist with a suggestion to check for *Salmonella* in the joint
 - D. Prescribe a non-steroidal anti-inflammatory drug and observe the results
65. Transposons:
- A. Are composed of an insertion sequence flanked by two antibiotic resistance genes.
 - B. Are the key component of resistance transfer factors.
 - C. Generate target site duplications upon insertion.
 - D. Regulate antigenic variation in *Salmonella enteritidis*
 - E. Disseminate the genes for virulence factors such as diphtheria toxin.

66. A 30-year-old man with AIDS presents with a 2-week history of nonproductive cough, fever, and shortness of breath during minimal exertion. A sputum sample was negative but tissue collected by transbronchial biopsy revealed extracellular cysts and trophs. Which of the following pathogens is the most likely etiologic agent of pneumonia in this patient?
- A. *Pneumocystis carinii*
 - B. *Blastomyces dermatitidis*
 - C. *Mycoplasma pneumoniae*
 - D. *Streptococcus pneumoniae*
 - E. *Aspergillus spp.*

MATCHING ITEMS

In each of the following groups there are two numbered lists. Mark on the answer sheet in the line corresponding to each question number in the lower list (67-72) the letter of the related item of the upper list.

DIRECTIONS: Select the option (A-E below) which best fits the descriptions numbered 67 - 69.

- A. Component of Gram positive cell walls
- B. Responsible for cell motility
- C. Bacterial appendage which mediates adhesion to host tissue.
- D. Location of antibiotic-inactivating enzymes.
- E. Functions during chromosome partitioning during replication

67. Pilus

68. Teichoic acid

69. Periplasm

DIRECTIONS: Select the option (A-E below) which best fits the descriptions numbered 70 - 72.

- A. Human papillomaviruses
- B. Cytomegalovirus
- C. Epstein-Barr virus
- D. Parvovirus B19
- E. Herpes simplex virus type 2
- F. Varicella-zoster virus

70. Approximately 1-2% of infants born in the United States are congenitally infected with this virus, often resulting in extremely serious consequences, such as hearing loss, mental retardation and infant death.

71. Genital warts are caused by some members of this virus family.

72. A patient presents with fever, sore throat and general malaise. Physical examination detects an enlarged spleen, and laboratory tests reveal an elevated white blood cell count and presence of heterophile antibodies. Which of the viruses listed above is most likely responsible for this patient's condition?