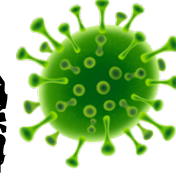
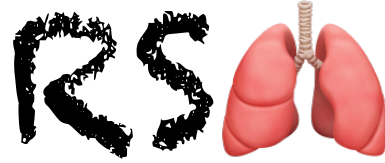


# Microbiology



Testbank



Done by: Rama Harb

Note:

Past papers questions are written in black  
Book&other questions are written in green

لهيك لا داعي للهلع لو كان في خيارات بأسئلة الكتاب ما وردت معنا بالمحاضرة، الهدف نركز عالاشياء يلي معنا

ونستفيد من الاسئلة كعلم

# Lecture1

1. Which of the following statements concerning antigenic drift in influenza viruses is Correct?

- a- It results in major antigenic change
- b- It is exhibited only by influenza A viruses
- c- It is caused by frameshift mutations in viral genes
- d- It results in new subtypes over time
- e- It affects predominantly the matrix protein

Answer: D

2. Highly pathogenic H5N1 avian influenza HPAI can infect humans with a high mortality rate, but it has not yet resulted in pandemic. The following are characteristics of HPAI, except for one. Which one is not?

- a- Efficient human-to-human transmission
- b- Presence of avian influenza genes
- c- Efficient infection of domestic poultry
- d- Contains segmented RNA genome
- e- Both high pathogenicity and low pathogenicity avian influenza viruses can cause disease in human beings

Answer: A

3. A patient with egg allergy and should not be given influenza vaccine, to protect them from Influenza A and B you can use:

Answer: **Oseltamivir or zanamivir**

4. Which of the following statements regarding the prevention and treatment of influenza is correct?

a- Booster doses of vaccine are not recommended.

b- Drugs that inhibit neuraminidase are active only against influenza A.

c- As with some other live vaccines, the attenuated influenza vaccine should not be given to pregnant women.

d- The influenza vaccine contains several serotypes of virus.

e- The virus strains in the influenza vaccine do not vary from year to year.

Answer: D

5. Which of the following symptoms is not typical of influenza?

a- Fever

b- Muscular aches

c- Malaise

d- Dry cough

e- Rash

Answer: E

6. Which of the following infectious agents is most likely to cause a pandemic?

- a- Influenza A virus
- b- Streptococcus pyogenes
- c- Influenza B virus
- d- Respiratory syncytial virus
- e- Influenza C virus

Answer: A

7. Outbreak of pneumonia takes place in nursing home, and can be treated with zanamivir and adamantanes effectively, the most likely pathogen is...

- a- Influenza A
- b- Influenza B
- c- Legionella pneumophelia
- d- Metapneumo

Answer: A

8. The live attenuated vaccine of influenza virus is administered:

- a- Orally
- b- Deep Intramuscular
- c- Intravenous
- d- Intranasal (Ans)
- e- Subcutaneous

Answer: D

9. which of the following about influenza is incorrect

- a- The antigenic variations occur only in type A due to its wide host range.
- b- Worldwide epidemics is caused by type A influenza.
- c- Antigenic drift is caused from a mutation in ribonucleoprotein.
- d- Antigenic shift, a major change that result from reassortment of viral genome.
- e- Antigenic drift happens in both hemagglutinin and neuraminidase.

Answer: C

## Lecture 2

10. Which of the following toxins can cause scarlet fever?

- a- DNase
- b- Streptolysin S
- c- Hyalase.
- d- C5a protease
- e- Erythrogenic toxin

Answer: E

11. All the following are true about *S. pyogenes* except:

- a- Can't be diagnosed by smear
- b- Available vaccine against its capsule
- c- Treated by penicillin with no resistance
- d- The capsule is an important virulence factor

Answer: B

12. Which of the following sentences is wrong:

- a- Antibiotics prevent glomerulonephritis and rheumatic fever .
- b- *Strep. pyogenes* is Bacitracin sensitive.
- c- Untreated pharyngitis may result in otitis media.
- d- People who are infected by GAS and develop later on AGN , will not develop this again if they're reinfected again by GAS .

Answer: A

13. All of the following are associated with Group A streptococci EXCEPT:

- a- Necrotizing fasciitis.
- b- Impetigo
- c- Neonatal sepsis.
- d- Erysipelas
- e- Cellulitis.

Answer: C

14. A boy present to the ER with strawberry tongue, rash on the chest and fever, his mother noticed whitish exudate on his tonsils 3 days ago, the causative microorganism ??

- a- Strep. agalactiae
- b- Strep. pyogenes
- c- Strep. Bovis

Answer: B

15. A primary mechanism responsible for the pathogenesis of AGN?

- a- A net increase in intracellular cyclic adenosine monophosphate
- b- Action of M protein
- c- Action of IgA1 protease
- d- Action of enterotoxin A
- e- Inactivation of elongation factor 2

Answer: B

16. a male patient presents with skin rash and red tongue, which describes the causative agent?

- a- Gram +,  $\alpha$  hemolytic, catalase -
- b- Gram +,  $\beta$  hemolytic, catalase -
- c- Gram -,  $\beta$  hemolytic, catalase +
- d- Gram-,  $\alpha$  hemolytic, catalase +
- e- Gram +,  $\gamma$  hemolytic, catalase +

Answer: B (hence:scarlet fever)

17. An 8-year-old boy develops a severe sore throat. On examination, a grayish-white exudate is seen on the tonsils and pharynx. The differential diagnosis includes group A streptococcal infection, Epstein-Barr virus infection, severe adenovirus infection, and diphtheria. (*Neisseria gonorrhoeae* pharyngitis would also be included, but the patient has not been sexually abused.) The cause of the boy's pharyngitis is most likely:

- a- A catalase-negative gram-positive coccus that grows in chains
- b- A single-stranded positive-sense RNA virus
- c- A catalase-positive gram-positive coccus that grows in clusters
- d- A catalase-negative gram-positive bacillus
- e- A double-stranded RNA virus

Answer: A

18. A primary mechanism responsible for the pathogenesis of the boy's disease (question 17) is:

- a- net increase in intracellular cyclic adenosine monophosphate
- b- Action of M protein
- c- Action of IgA1 protease
- d- Action of enterotoxin A
- e- Inactivation of elongation factor 2

Answer: B

19. All the following statements regarding the hyaluronic acid capsule of *S. pyogenes* are correct except:

- a- It is responsible for the mucoid appearance of the colonies in vitro.
- b- It is antiphagocytic.
- c- It binds to CD44 on human epithelial cells.
- d- It is an important virulence factor.
- e- A vaccine against the capsule is currently available.

Answer: E



20. An 8-year-old girl develops Sydenham's chorea ("St. Vitus dance") with rapid uncoordinated facial tics and involuntary purposeless movements of her extremities, strongly suggestive of acute rheumatic fever. She has no other major manifestations of rheumatic fever (carditis, arthritis, subcutaneous nodules, skin rash). The patient's throat culture is negative for *Streptococcus pyogenes* (group A streptococci). However, she, her brother, and her mother all had sore throats 2 months ago. A test that if positive would indicate recent *S. pyogenes* infections:

- a- Ant streptolysin S antibody titer
- b- Polymerase chain reaction for antibodies against M protein
- c- ASO antibody titer
- d- Esculin hydrolysis
- e- Anti-hyaluronic acid antibody titer

Answer: C

21. Important methods for classifying and speciating streptococci are:

- a- Agglutination using antisera against the cell wall group specific substance
- b- Biochemical testing
- c- Hemolytic properties ( $\alpha$ -,  $\beta$ -, nonhemolytic)
- d- Capsular swelling (quellung) reaction
- e- All of the above

Answer: E

22. Enterococci can be distinguished from nonenterococcal group D streptococci on the basis of which of the following characteristics?

- a-  $\gamma$ -Hemolysis
- b- Esculin hydrolysis
- c- Growth in 6.5% NaCl
- d- Growth in the presence of bile
- e- Gram stain morphology

Answer: C

23. A 15-year-old girl develops a sore throat, fever, and earache of approximately one week duration. Upon examination by her physician, an erythematous rash is noted covering most of her body and her tongue appears bright red. Which of the following is the description of the causal agent?

- a- Gram-positive coccus, alpha hemolytic, catalase negative
- b- Gram-positive coccus, beta hemolytic, catalase negative
- c- Gram-positive coccus, alpha hemolytic, catalase positive
- d- Gram-positive coccus, beta hemolytic, catalase positive
- e- Gram-positive coccus, gamma hemolytic, catalase negative

Answer: B

## Lecture 3

A 3-year-old child develops *Haemophilus influenzae* meningitis. Therapy is begun with cefotaxime. Why is this third-generation cephalosporin used rather than ampicillin?

- a- About 80% of *Haemophilus influenzae* organisms have modified penicillin-binding proteins that confer resistance to ampicillin.
- b- The drug of choice, trimethoprim–sulfamethoxazole, cannot be used because the child is allergic to sulfonamides.
- c- It is easier to administer intravenous cefotaxime than intravenous ampicillin.
- d- There is concern that the child will rapidly develop a penicillin (ampicillin) allergy.
- e- About 20% of *Haemophilus influenzae* organisms have a plasmid that encodes  $\beta$ -lactamase

Answer: E

An 18-month-old boy has been playing with a child who develops *Haemophilus influenzae* meningitis. The boy's parents consult his pediatrician, who says she is comfortable that the child will be fine because he has been fully immunized with the polyribitol ribose phosphate (PRP)–protein conjugate vaccine. For what reason is it necessary to immunize infants of 2 months to 2 years of age with polysaccharide–protein conjugate vaccines?

- a- The conjugate protein is diphtheria toxoid, and the goal is for the infant to develop simultaneous immunity to diphtheria.
- b- Infants 2 months to 2 years of age do not immunologically respond to polysaccharide vaccines that are not conjugated to a protein.
- c- The conjugate vaccine is designed for older children and adults as well as infants.
- d- Maternal (transplacental) antibodies against *Haemophilus influenzae* are gone from the infant's circulation by 2 months of age.
- e- None of the above

Answer: B

A 13-valent capsular polysaccharide protein conjugate vaccine for pneumococcal infections is recommended for:

- a- For children up to age 18 years and for selected adults
- b- Only on exposure to a patient with disease caused by the organism
- c- For all children ages 2–60 months plus selected older children and adults with immunocompromising conditions
- d- For children ages 24–72 months
- e- For all age groups older than age 2 months

Answer: C

A 48-year-old alcoholic man is admitted to a hospital because of stupor. He is unkempt and homeless and lives in an encampment with other homeless people, who called the authorities when he could not be easily aroused. His temperature is 38.5°C, and his blood pressure 125/80 mm Hg. He moans when attempts are made to arouse him. He has positive Kernig and Brudzinski signs, suggesting meningeal irritation. Physical examination and chest radiography show evidence of left lower lobe lung consolidation. An endotracheal aspirate yields rust-colored sputum. Examination of a Gram-stained sputum smear shows numerous polymorphonuclear cells and numerous gram-positive lancet-shaped diplococci. On lumbar puncture, the cerebrospinal fluid is cloudy and has a white blood cell count of 570/μL with 95% polymorphonuclear cells; Gram stain shows numerous gram-positive diplococci. Based on this information, the likely diagnosis is:

- a- Pneumonia and meningitis caused by *Staphylococcus aureus*
- b- Pneumonia and meningitis caused by *Streptococcus pyogenes*
- c- Pneumonia and meningitis caused by *Streptococcus pneumoniae*
- d- Pneumonia and meningitis caused by *Enterococcus faecalis*
- e- Pneumonia and meningitis caused by *Neisseria meningitidis*

Answer: C

The patient in the previous question is started on antibiotic therapy to cover many possible microorganisms. Subsequently, culture of sputum and cerebrospinal fluid yields gram-positive diplococci with a minimum inhibitory concentration to penicillin G of greater than 2 µg/mL. The drug of choice for this patient until further susceptibility testing can be done is:

- a- Penicillin G
- b- Nafcillin
- c- Trimethoprim–sulfamethoxazole
- d- Gentamicin
- e- Vancomycin

Answer: E

This infection of the patient in the previous question might have been prevented by

- a- Prophylactic intramuscular benzathine penicillin every 3 weeks
- b- A 23-valent capsular polysaccharide vaccine
- c- A vaccine against serogroups A, C, Y, and W135 capsular polysaccharide
- d- A vaccine of polyribosylribitol capsular polysaccharide covalently linked to a protein
- e- Oral penicillin twice daily

Answer: B

The pathogenesis of the organism causing the infection (in the previous question) includes which of the following?

- a- Invasion of cells lining the alveoli and entry into the pulmonary venule circulation
- b- Resistance to phagocytosis mediated by M proteins
- c- Migration to mediastinal lymph nodes where hemorrhage occurs
- d- Lysis of the phagocytic vacuole and release into the circulation
- e- Inhibition of phagocytosis by a polysaccharide capsule

Answer: E

## Lecture 4

In which stage of pertussis is the characteristic whooping sound made?

- a- convalescence
- b- catarrhal
- c- Paroxysmal
- d- Prodromal
- e- None of the above

Answer: C

An 8-year-old boy, who recently arrived in the United States, develops a severe sore throat. On examination, a greyish exudate is seen over the tonsils and pharynx with oral membrane that bleeds profusely when touching it, he also has lymphadenopathy The cause of the boy's pharyngitis is most likely:

- a- Gram negative aerobic non encapsulated bacteria
- b- Gram positive anaerobic encapsulated bacteria
- c- Gram negative anaerobic encapsulated bacteria
- d- Gram positive aerobic non encapsulated bacteria

Answer: D

All of the following statements regarding acellular pertussis vaccines are correct except?

- a- All formulations of the vaccine contain at least two antigens.
- b- the acellular vaccine has replaced the whole cell vaccine in the childhood vaccine series.
- c- All children should receive five doses of the vaccine before school entry.
- d- The vaccine is approved only for young children and adolescents.
- e- The vaccine is safer than and as immunogenic as whole cell vaccines.

Answer: D

Mechanism of action of toxin for bacteria grown in Bordet-Gengou medium is?

- a- ADP ribosylation of GTP binding protein
- b- ADP ribosylation of Gi
- c- inhibition of acetylcholine
- d- inactivation of elongation factor 2

Answer: B

Which of the following is not a recognized virulence factor of Bordetella pertussis?

- a- Heat-labile toxin
- b- Filamentous hemagglutinin
- c- Tracheal cytotoxin
- d- Pertussis toxin
- e- Dermonecrotic toxin

Answer: A

A 3-month-old infant is brought to the pediatric emergency department in severe respiratory distress. The child appears dehydrated, and there is a prominent peripheral lymphocytosis. The chest radiograph reveals perihilar infiltrates. The child's grandmother, who watches the infant now that the mother has returned to work, has had a dry hacking cough for about 2 weeks. The most likely causative agent is:

- a- Haemophilus influenzae type b
- b- Bordetella pertussis
- c- Streptococcus agalactiae
- d- Chlamydia pneumoniae
- e- Bordetella bronchiseptica

Answer: B

In the previous Question, the factor responsible for the profound lymphocytosis is:

- a- A hemagglutinin
- b- A polysaccharide capsule
- c- An A/B structured toxin
- d- A heat-labile toxin
- e- A neuraminidase

Answer: C



Which of the following is important in the pathogenesis of mycoplasmal infections?

- a- The peptidoglycan in the mycoplasmal cell wall
- b- The presence of lacto-N-neotetraose with a terminal galactosamine as the host cell receptor
- c- The structures and the interactive proteins that mediate adhesion to host cells
- d- The absence of cilia on the surface of the host cells
- e- Growth in an anatomic site where anaerobic organisms thrive

Answer: C

An 8-year-old boy, who recently arrived in the United States, develops a severe sore throat. On examination, a grayish exudate (pseudomembrane) is seen over the tonsils and pharynx. The differential diagnosis of severe pharyngitis such as this includes group A streptococcal infection, Epstein-Barr virus (EBV) infection, *Neisseria gonorrhoeae* pharyngitis, and diphtheria. The cause of the boy's pharyngitis is most likely:

- a- A gram-negative bacillus
- b- A single-stranded positive-sense RNA virus
- c- A catalase-positive, gram-positive coccus that grows in clusters
- d- A club-shaped gram-positive bacillus
- e- A double-stranded RNA virus

Answer: D

A 10-year-old girl with an incomplete vaccination history presents to her pediatrician with a fever of 38.6 C (101.5 F), sore throat, malaise, and difficulty breathing. Physical examination reveals cervical lymphadenopathy and a gray, leathery exudate in the rear of the oropharynx. The area bleeds profusely when disturbed with a tongue depressor. Which of the following correctly describes the causal agent?

- a- Gram-negative rod; toxin that inhibits protein synthesis
- b- Gram-negative rod; toxin that increases cAMP
- c- Gram-positive aerobic rod; toxin that inhibits protein synthesis
- d- Gram-positive anaerobic rod; toxin that inhibits protein synthesis
- e- Gram-positive aerobic rod; toxin that increases cAMP

Answer: C(020 past question)

## Lecture 6

A 60-year-old man has a 5-month history of progressive weakness and a weight loss of 13 kg along with intermittent fever, chills, and a chronic cough productive of yellow sputum, occasionally streaked with blood. A sputum specimen is obtained, and numerous acid-fast bacteria are seen on the smear. Culture of the sputum is positive for M tuberculosis. Which treatment regimen is most appropriate for initial therapy?

- a- Isoniazid and rifampin
- b- Sulfamethoxazole–trimethoprim and streptomycin
- c- Isoniazid, rifampin, pyrazinamide, and ethambutol
- d- Isoniazid, cycloserine, and ciprofloxacin
- e- Rifampin and streptomycin

Answer: C

A 31-year-old Asian woman is admitted to the hospital with a 7-week history of increasing malaise, myalgia, nonproductive cough, and shortness of breath. She has daily fevers of 38–39°C and a recent 5-kg weight loss. She had a negative chest radiograph when she entered the United States 7 years ago. The patient's grandmother died of tuberculosis when the patient was an infant. A current chest radiograph is normal; results of other tests show a decreased hematocrit and liver function test abnormalities. Liver and bone marrow biopsies show granulomas with giant cells and acid-fast bacilli. She is probably infected with:

- a- *Mycobacterium leprae*
- b- *Mycobacterium fortuitum*
- c- *Mycobacterium ulcerans*
- d- *Mycobacterium gordonae*
- e- *Mycobacterium tuberculosis*

Answer: E

It is very important that the patient in the previous question also be evaluated for:

- a- HIV/AIDS
- b- Typhoid fever
- c- Liver abscess
- d- Lymphoma
- e- Malaria

Answer: A

Of concern regarding the patient in the previous question is that she could be infected with a *Mycobacterium* that is:

- a- Susceptible only to isoniazid
- b- Resistant to streptomycin
- c- Resistant to clarithromycin
- d- Susceptible only to ciprofloxacin
- e- Resistant to isoniazid and rifampin

Answer: E

All of the following organisms are rapidly growing mycobacteria except:

- a- *Mycobacterium fortuitum*
- b- *Mycobacterium abscessus*
- c- *Mycobacterium nonchromogenicum*
- d- *Mycobacterium chelonae*

Answer: C

A 72-year-old woman has an artificial hip joint placed because of degenerative joint disease. One week after the procedure, she has fever and joint pain. The hip is aspirated, and the fluid is submitted for routine culture and for culture for acid-fast. After 2 days of incubation, there is no growth on any of the media. After 4 days, however, bacilli are seen growing on the sheep blood agar plate, and similar-appearing acid fast bacilli are growing on the culture for acid-fast bacteria. The patient is most likely infected with:

- a- *Mycobacterium tuberculosis*
- b- *Mycobacterium chelonae*
- c- *Mycobacterium leprae*
- d- *Mycobacterium kansasii*
- e- *Mycobacterium avium complex*

Answer: B

A 10-year-old child has a primary pulmonary M tuberculosis infection. Which of the following features of tuberculosis is most correct?

- a- In primary tuberculosis, an active exudative lesion develops and rapidly spreads to lymphatics and regional lymph nodes.
- b- The exudative lesion of primary tuberculosis often heals slowly.
- c- If tuberculosis develops years later, it is a result of another exposure to M tuberculosis.
- d- In primary tuberculosis, all of the infecting M tuberculosis organisms are killed by the patient's immune response.
- e- In primary tuberculosis, the immune system is primed, but the PPD skin test result remains negative until there is a second exposure to M tuberculosis

Answer;A

Three months ago, a 53-year-old woman had surgery and chemotherapy for breast cancer. Four weeks ago, she developed a cough occasionally productive of purulent sputum. About 2 weeks ago, she noted a slight but progressive weakness of her left arm and leg. On chest examination, rales were heard over the left upper back when the patient breathed deeply. Neurologic examination confirmed weakness of the left arm and leg. Chest radiography showed a left upper lobe infiltrate. Contrast enhanced computed tomography showed two lesions in the right hemisphere. Gram stain of a purulent sputum specimen showed branching gram-positive rods that were partially acid fast. Which of the following organisms is the cause of this patient's current illness?

- a- *Actinomyces israelii*
- b- *Corynebacterium pseudodiphtheriticum*
- c- *Aspergillus fumigatus*
- d- *Nocardia farcinica*
- e- *Erysipelothrix rhusiopathiae*

Answer: D

Which of the following aerobic gram-positive bacilli is modified acid-fast positive?

- a- *Nocardia brasiliensis*
- b- *Lactobacillus acidophilus*
- c- *Erysipelothrix rhusiopathiae*
- d- *Listeria monocytogenes*

Answer: A

A homeless, malnourished chronic alcoholic presents with severe headache and dyspnea. Physical examination reveals a disheveled man with poor hygiene. His temperature is 41.0 C (105.8 F), blood pressure is 110/78 mm Hg, and pulse is 96/minute and regular. Auscultation of the chest reveals absence of breath sounds over the left middle lung fields. A chest x-ray confirms left lobar pneumonia. Sputum stain reveals partially acid-fast bacilli with branching rods. Which of the following agents is the most likely cause?

- a- *Mycobacterium avium-intracellulare*
- b- *Mycobacterium kansasii*
- c- *Mycobacterium leprae*
- d- *Mycobacterium tuberculosis*
- e- *Nocardia asteroides*

Answer: E(020 past question)

A 40-year-old homeless man presents to the emergency department with fever and night sweats, coughing up blood. Acid-fast bacilli are identified in his sputum. Which of the following virulence factors allows the causal agent to inhibit phagosome-lysosome fusion to survive intracellularly?

- a- Cord factor
- b- Calcium dipicolinate
- c- Peptidoglycan
- d- Sulfatides
- e- Tuberculin

Answer: D

Which of the following statements about the purified protein derivative (PPD) and the tuberculin skin test is most correct?

- a- It is strongly recommended that medical and other health science students have PPD skin tests every 5 years.
- b- Persons immunized with BCG rarely, if ever, convert to positive PPD skin test results.
- c- The intradermal skin test is usually read 4 hours after being applied.
- d- A positive tuberculin test result indicates that an individual has been infected with M tuberculosis in the past and may continue to carry viable mycobacteria
- e- A positive PPD skin test result implies that a person is immune to active tuberculosis.

Answer: D

Which of the following statements regarding interferon- release assays (IGRAs) is correct?

- a- They are useful for evaluating immunocompromised patients for active Tuberculosis.
- b- they detect antigens present in all Mycobacterium species.
- c- They are not available yet for testing in the hospitals.
- d- They are performed using molecular probes that detect organism DNA.
- e- They are used as alternatives to the tuberculin skin test to evaluate for latent tuberculosis.

Answer: E

The definition of extensively drug-resistant (XDR) tuberculosis includes?

- a- Resistance to isoniazid
- b- Resistance to a fluoroquinolone
- c- Resistance to capreomycin, amikacin or kanamycin
- d- Resistance to rifampin
- e- All the above

Answer: E

## Lecture 6

Humans become infected with Legionella pneumophila by one of the following?

- a- Kissing a person who is a legionella carrier
- b- Breathing aerosols from environmental water sources
- c- Receiving a mosquito bite
- d- Consuming undercooked pork
- e- All the above

Answer: B



Mycoplasma pneumoniae is considered. All of the following are methods to confirm the clinical suspicion except?

- a- PCR amplification of Mycoplasma pneumoniae DNA in sputum
- b- Culture of sputum for Mycoplasma pneumoniae
- c- Gram stain of sputum smear
- d- Culture of a lung aspirate for Mycoplasma pneumoniae
- e- Enzyme immunoassay test of acute and convalescent sera

Answer: C

A 13-year-old boy develops infection with Mycoplasma pneumoniae. What is the risk for infection in other members of his household?

- a- None; it is sexually transmitted
- b- 1–3%
- c- 10–15%
- d- 20–40%
- e- 50–90%

Answer: E

A patient presents with paranasal swelling and bloody exudate from both his eyes and nares, and he is nearly comatose. Necrotic tissue in the nasal turbinate's show no septate hyphae consistent with Rhizopus, Mucor, or Absidia. What is the most likely compromising condition underlying this infection?

- a- Chronic sinusitis
- b- Ketoacidotic diabetes
- c- Neutropenia
- d- B-cell defects
- e- AIDS

Answer: B

A 65-year-old man comes to the emergency department feeling feverish and “really tired.” He has a chronic cigarette cough, but this has dramatically increased in the past week and he has been producing whitish sputum. The previous day he had a temperature of 38°C and watery diarrhea. Physical examination reveals inspiratory and expiratory wheezes and rales over the right lower lung field. Chest radiography shows a patchy right lower lobe infiltrate. The differential diagnosis of this patient’s disease is:

- a- Streptococcus pneumoniae pneumonia
- b- Legionella pneumophila pneumonia
- c- Haemophilus influenzae pneumonia
- d- Mycoplasma pneumoniae pneumonia
- e- All of the above

Answer: E

All of the statements below regarding infections with Legionella are correct except:

- a- Hospitals that care for patients at risk for Legionella infections should know if their potable water systems contain Legionella.
- b- Human-to-human transmission is the major mechanism of transmission of Legionella infection.
- c- Legionella species can be visualized with Gram stain if carbolfuchsin is used for the counter stain.
- d- The chest radiograph of a patient who has Legionella pneumonia is indistinguishable from that of patients with pneumonia caused by other pathogens.
- e- A macrolide or quinolone are the drugs of first choice for treatment of Legionella infections.

Answer: B

An 18-year-old sexually active woman develops left lower quadrant pain and fever. On pelvic examination, she has tenderness in the left adnexa, and a mass suggestive of a uterine tube abscess is palpated. The patient is diagnosed with pelvic inflammatory disease. Which of the following bacteria is considered to be a common cause of pelvic inflammatory disease?

- a- Bacillus cereus
- b- Haemophilus influenzae
- c- Neisseria subflava
- d- Mycoplasma pneumoniae
- e- Chlamydia trachomatis

Answer: E

Which type of test is most readily used to obtain laboratory confirmation of *Mycoplasma pneumoniae* infection?

- a- Culture in broth containing serum, glucose, and a penicillin (to inhibit other flora)
- b- PCR
- c- electron microscopy
- d- EIA tests on acute and convalescent phase sera

Answer: D

Infection with *Mycoplasma genitalium*:

- a- is not restricted to the genitourinary tract.
- b- results in inflammation causing urethritis in males and cervicitis in females.
- c- is best treated with a first-generation cephalosporin.
- d- is associated only with nongonococcal urethritis in males.
- e- is asymptomatic unless a co-infection with *Chlamydia trachomatis* is present.

Answer: B

A 47-year-old man with poorly controlled diabetes mellitus developed a bloody nasal discharge, facial edema, and necrosis of his nasal septum. Culture of his cloudy nasal secretions yielded *Rhizopus* species. What is the most important implication of this finding?

- a- No diagnostic value because this mold is an airborne contaminant.
- b- Consider treatment for rhinocerebral mucormycosis (zygomycosis).
- c- Strongly suggestive of ketoacidosis.
- d- Strongly suggestive of HIV infection.
- e- The patient has been exposed to indoor mold contamination.

Answer: B

Which statement regarding aspergillosis is correct?

- a- Patients with allergic bronchopulmonary aspergillosis rarely have eosinophilia.
- b- Patients receiving parenteral corticosteroids are not at risk for invasive aspergillosis.
- c- The diagnosis of pulmonary aspergillosis is frequently established by culturing *Aspergillus* from the sputum and blood
- d- The clinical manifestations of aspergillosis include local infections of the ear, cornea, nails, and sinuses.
- e- Bone marrow transplant recipients are not at risk for invasive aspergillosis.

Answer: D

Which statement regarding paracoccidiomycosis is not correct?

- a- The etiologic agent is a dimorphic fungus.
- b- Most patients acquired their infections in South America.
- c- Although the infection is acquired by inhalation and is initiated in the lungs, many patients develop cutaneous and mucocutaneous lesions.
- d- The vast majority of patients with active disease are males.
- e- The etiologic agent is inherently resistant to amphotericin B.

Answer: E

A 15-day-old boy presents with conjunctivitis. Iodine staining bodies are seen in conjunctival scrapings. The most likely infectious form is a(n):

- a- elementary body
- b- reticulate body
- c- endospore
- d- exotoxin
- e- vegetative cell

Answer: A

Good luck.