

Sample Questions

American Board of Medical Microbiology

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SAMPLE QUESTIONS

The sample questions included in this examination guide are actual questions from previous examinations. They have been removed from the question pool. Do not judge the content as indicative of content in current questions, but use these sample questions as templates for the format.

1. Five cases of prosthetic valve endocarditis caused by *Staphylococcus epidermidis* are observed in one hospital. Of the following available methods, which is BEST for determining whether all five isolates were derived from a single source?

- A. Serotyping
- B. Restriction fragment length polymorphism analysis
- C. Antimicrobial susceptibility testing
- D. Bacteriophage typing

Question tests Bacteriology: Infection Control.

2. **Which of the following organisms is the most common cause of septicemia in patients with sickle cell disease?**

- A. *Salmonella enteritidis*
- B. *Streptococcus pneumoniae*
- C. *Streptococcus agalactiae*
- D. *Shigella sonnei*

Question tests Bacteriology: Infectious Disease and Pathogenesis.

3. A 20-year-old man was generally healthy until his impacted wisdom tooth was removed by an oral surgeon. The area where the tooth had been was sore and there were eruptions through the skin beneath the area of the jaw where the tooth had been. The exudate draining through the skin eruptions was cultured aerobically, but the results were negative.

Which of the following is the most probable etiologic agent of this patient's condition?

- A. *Actinomyces israelii*
- B. *Histoplasma capsulatum*
- C. *Nocardia asteroides*
- D. *Actinomyces bovis*

Question tests Bacteriology: Infectious Disease and Pathogenesis.

4. The highly infectious asexual conidia of *Coccidioides immitis* are called which of the following?

- A. Arthroconidia
- B. Blastoconidia
- C. Chlamydozoospores
- D. Sporangiospores

Question tests Mycology: Public Health.

5. Which of the following specimens is used to diagnose infections with *Naegleria fowleri*?

- A. Cerebrospinal fluid
- B. Corneal scraping
- C. Blood
- D. Urine

Question tests Parasitology: Diagnostic Systems and Interpretation of Laboratory Data.

6. An individual who has received all three doses of hepatitis B vaccine and who has never had hepatitis B virus (HBV) infection would be expected to have which of the following serologic marker(s)?

- A. HBcAb
- B. HBsAb
- C. HBeAb
- D. HBeAb and HBsAb

Question tests Virology: Diagnostic Systems and Interpretation of Laboratory Data.

7. Which of the following is the arthropod vector of tularemia in North America?
- A. *Dermacentor* species
 - B. *Ornithodoros* species
 - C. *Culex* species
 - D. *Ixodes* species

Question tests Bacteriology: Public Health.

8. Which one of the following viral diseases has the shortest incubation period?
- A. Rubella
 - B. Influenza
 - C. Hepatitis A
 - D. Hepatitis B

Question tests Virology: Public Health.

9. A 42-year-old wig manufacturer returned 5 days ago from Iran where he was inspecting herds for raw material. He had initially experienced only mild upper respiratory tract symptoms, but 2 days later was brought to the emergency room with fever, severe dyspnea, cyanosis, and tachycardia. Blood cultures were drawn and after 16 hours of incubation, the smears revealed large, gram-positive rods with subterminal spores. The organism was nonhemolytic on blood agar and nonmotile. What is the most probable identity of this organism?
- A. *Clostridium tertium*
 - B. *Bacillus anthracis*
 - C. *Clostridium perfringens*
 - D. *Bacillus subtilis*

Question tests Bacteriology: Diagnostic Systems and Interpretation of Laboratory Data.

10. A 14-year-old boy from rural Maryland was seen in the emergency room with fever, fatigue, chills, headache, and a large annular lesion on his left thigh which the patient described as burning and itching. What is the most probable vector of this child's illness?

- A. Tick
- B. Mosquito
- C. Flea
- D. Louse

Question tests Bacteriology: Infectious Disease.

11. To safely work with etiologic agents classified as biosafety level 2 (BSL 2) requires BSL 1 laboratory practices, equipment, and facility recommendations. An additional recommendation includes which of the following?

- A. Perform all procedures within a class II biological safety cabinet
- B. Wear gloves and face protection for potential splashes only
- C. Have negative air flow from the hallway to the laboratory
- D. Have self-closing double-door access

Question tests Universal.

12. A patient who recently returned from a camping trip in Montana is hospitalized with high fever and prostration that recurs every 5 to 7 days. Loosely coiled spiral-shaped organisms 10 to 20 μm in length are noted in a Wright-stained smear of the patient's blood. Which of the following is the most probably etiologic agent?

- A. *Leptospira interrogans*
- B. *Spirillum minor*
- C. *Borrelia hermsii*
- D. *Treponema pallidum*

Question tests Bacteriology: Diagnostic Systems and Interpretation of Laboratory Data.

13. At laboratory rounds, the supervisor shows you the following susceptibility results by microbroth dilution of a *Streptococcus mitis* isolate from a patient with endocarditis: penicillin resistant, erythromycin resistant, and vancomycin susceptible. The physician telephones asking for the susceptibility results, including susceptibility to clindamycin. What should you tell the physician?

- A. None of the susceptibility results are ready to be reported until confirmed by a second antimicrobial susceptibility test (AST) method, but viridans group streptococci remain predictably susceptible to clindamycin.
- B. Report the current results, and advise him that viridans group streptococci remain predictably susceptible to clindamycin.
- C. Report the current results, and advise him that in viridans group streptococci, resistance to erythromycin predicts resistance to clindamycin.
- D. Report the current results, and tell him the laboratory will also test the isolate for susceptibility to clindamycin.

Question tests Bacteriology: Diagnostic Systems and Interpretation of Laboratory Data.

14. A previously normal, full-term infant developed bilateral conjunctivitis at 2 weeks of age. The conjunctivitis was followed by severe coughing, but the infant remained afebrile. When the infant was 4 weeks old, a chest X ray showed bilateral symmetrical interstitial infiltrates. The white blood cell (WBC) count was 14,000/mm³ with 32% segmented neutrophils, 58% lymphocytes, 2% monocytes, and 4% eosinophils. Which of the following is the most probable infectious agent?

- A. *Chlamydia trachomatis*
- B. *Streptococcus agalactiae*
- C. *Haemophilus influenzae*
- D. Adenovirus

Question tests Bacteriology: Infectious Disease and Pathogenesis.

15. Two days after a 51-year-old man, who was one year post liver transplant, suffered a puncture wound to his thumb while fishing in the Gulf of Mexico, he experienced the abrupt onset of pain, fever, and rapidly progressing skin lesions on both lower extremities. Subsequent symptoms included tingling in the hand, nausea, vomiting, fever, and chills. On admission to the hospital,

he had purpuric skin lesions on both legs. Blood cultures obtained at the time of admission demonstrated growth of gram-negative bacteria. This infection is most probably caused by which of the following?

- A. *Vibrio damsela*
- B. *Vibrio metschnikovii*
- C. *Vibrio vulnificus*
- D. *Vibrio parahaemolyticus*

Question tests Bacteriology: Infectious Disease and Pathogenesis.

16. Two patients were admitted to a major medical center in the southwestern United States. The first patient presented with chronic sinusitis. Hematoxylin and eosin stains of debrided material revealed granulation tissue, chronic inflammation, and noninvasive, brownish septate hyphae. The second patient presented with leukemia and an erythematous cutaneous lesion. Biopsy of the lesion revealed septate hyphae, swollen hyphal elements, and hyphae with bizarre dilatations. What is the most probable etiology for both patients?

- A. *Aspergillus* species
- B. *Rhizopus* species
- C. *Bipolaris* species
- D. *Drechslera* species

Question tests Mycology: Diagnostic Systems and Interpretation of Laboratory Data.

17. A previously healthy, 24-year-old Mexican immigrant is brought to an emergency room in Los Angeles because of seizures. A CAT scan reveals a solitary calcified lesion, 2 cm in diameter, in the right cerebral hemisphere. What is the most probable diagnosis?

- A. Central nervous system coccidioidomycosis
- B. Cerebral cysticercosis
- C. Cerebral echinococcosis
- D. Extraintestinal amebiasis

Question tests Parasitology: Infectious Disease and Pathogenesis.

18. A 2-year-old child is admitted to your hospital with kidney failure. She experienced a mild diarrheal illness with some blood noted in her stools prior to the onset of her disease. Several additional cases of bloody diarrhea and kidney failure in adolescents have been recognized in the community. As part of the workup of the new cases, you suggest that a stool culture be submitted for analysis. Of the following, what is the most important screening medium to include for these specimens?
- A. MacConkey agar with sorbitol
 - B. Thiosulfate citrate bile sucrose agar
 - C. Hektoen enteric agar
 - D. Cycloserine cefoxitin fructose agar

Question tests Bacteriology: Diagnostic Systems and Interpretation of Laboratory Data.

19. A patient develops a new respiratory infiltrate and becomes febrile. After primary routine culture of expectorated sputum has been evaluated and results have not been helpful, what is the next test likely to yield the most diagnostic information with the least patient risk?
- A. Bronchoalveolar lavage
 - B. Fine-needle aspiration
 - C. Thoracentesis
 - D. Open-lung biopsy

Question tests Universal.

20. A 16-year-old girl was admitted to a New Mexico hospital because of hypotension, cyanosis, high fever (39.9°C), and bilateral, nonfluctuant, inguinal, and axillary lymphadenopathy. The patient died the same day. Blood cultures obtained on admission were positive for bipolar-staining, short, gram-negative bacilli. What is the most probable etiologic agent?
- A. *Yersinia pestis*
 - B. *Brucella abortus*

- C. *Klebsiella rhinoscleromatis*
- D. *Francisella tularensis*

Question tests Bacteriology: Diagnostic Systems and Interpretation of Laboratory Data.

21. Acute infantile diarrhea is most commonly due to infection with which of the following?
- A. Enteroviruses
 - B. Rotaviruses
 - C. Noroviruses
 - D. Enteric adenoviruses

Question tests Virology: Diagnostic Systems and Interpretation of Laboratory Data.

22. Food and Drug Administration-approved antiviral drugs are currently available for treatment of which of the following diseases?
- A. Adult mumps and yellow fever
 - B. Rubella and measles
 - C. Influenza and disseminated herpes
 - D. Hantavirus pulmonary syndrome and zoster

Question tests Virology: Infection Control.

23. Several laboratory tests were researched for their usefulness in evaluating suspected histoplasmosis in patients who reside in an area where this disease is endemic. If the prevalence of histoplasmosis is 25%, which of the following sensitivity and specificity combinations would you choose as the most useful confirmatory test for diagnosing the disease?
- A. Sensitivity of 50%, specificity of 98%
 - B. Sensitivity of 90%, specificity of 80%
 - C. Sensitivity of 92%, specificity of 70%
 - D. Sensitivity of 99%, specificity of 90%

Question tests Universal.

24. A 16-year-old male from Los Angeles with end-stage renal disease is admitted to the hospital for evaluation of a febrile episode. Laboratory studies showed that the boy was hypogammaglobulinemic. A blood culture obtained on admission was positive for faintly staining, curved, gram-negative rods from the aerobic bottle only. An oxidase-positive, catalase-negative, motile, helical, gram-negative rod was recovered on chocolate agar after 3 days of incubation at both 37°C and 42°C. This organism did not grow on *Campylobacter* blood agar. What is the most probable etiologic agent?

- A. *Campylobacter coli*
- B. *Campylobacter upsaliensis*
- C. *Helicobacter pylori*
- D. *Vibrio metschnikovii*

Question tests Bacteriology: Infectious Disease and Pathogenesis.

25. According to the Centers for Disease Control and Prevention *Infection Control Guidelines*, routine microbiologic sampling is indicated for which of the following?

- A. Respiratory therapy equipment
- B. Dialysis fluid
- C. Sterile disposable equipment
- D. Operating room surfaces

Question tests Bacteriology: Infection Control.

26. Which of the following are associated with *Histoplasma capsulatum*?

- A. Tuberculate macroconidia
- B. Spherules
- C. Sclerotic bodies
- D. Arthroconidia

Question tests Mycology: Diagnostic Systems and Interpretation of Laboratory Data.

27. Which medium is useful for the isolation of *Malassezia furfur*?

- A. Charcoal yeast extract agar
- B. Egg yolk agar
- C. Brain heart infusion agar containing glycerol
- D. Sheep blood agar with olive oil overlay

Question tests Mycology: Diagnostic Systems and Interpretation of Laboratory Data.

28. Which of the following viruses is closely associated with exanthem subitum (roseola infantum)?

- A. Parvovirus B19
- B. Human herpesvirus 6
- C. Rubella virus
- D. Rubeola virus

Question tests Virology: Infectious Disease and Pathogenesis.

29. Which of the following is the best method to diagnose West Nile virus encephalitis?

- A. Virus culture of buffy coat
- B. Acute and convalescent serologic testing on serum
- C. IgM serologic testing on cerebrospinal fluid
- D. PCR on cerebrospinal fluid

Question tests Virology: Diagnostic Systems and Interpretation of Laboratory Data.

30. Of the following viruses, which is the most common nosocomial pathogen in pediatric wards?

- A. Respiratory syncytial virus
- B. Adenovirus
- C. Herpes simplex virus
- D. Cytomegalovirus

Question tests Virology: Infection Control.

31. A florist presents with a lymphocutaneous infection of the right hand and forearm. What is the most probable fungal etiologic agent?

- A. *Cladosporium carrionii*
- B. *Phialophora verrucosa*
- C. *Sporothrix schenckii*
- D. *Trichosporon cutaneum*

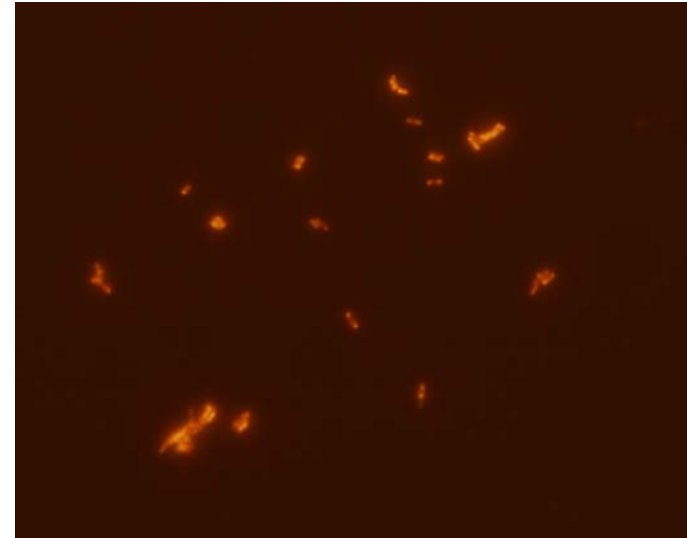
Question tests Mycology: Infectious Disease and Pathogenesis.

32. Which of the following, if ingested raw or poorly cooked, can be the source of *Taenia saginata* infections?

- A. Pork
- B. Beef
- C. Lamb
- D. Fish

Question tests Parasitology: Public Health.

33. The picture shown is an auramine-rhodamine stain of an organism recovered from an infected finger wound that was slowly progressive in spite of topical antibiotic treatment. The organism grew optimally at 30°C on Middlebrook 7H11 medium and formed deep yellow pigment when exposed to light. The organism was negative for nitrates and heat-stable catalase, but hydrolyzed Tween and produced urease and pryazinamidase. What is the most probable identification of this organism?



- A. *Mycobacterium ulcerans*
- B. *Mycobacterium simiae*
- C. *Mycobacterium kansasii*
- D. *Mycobacterium marinum*

Question tests Bacteriology: Diagnostic Systems and Interpretation of Laboratory Data.

ANSWERS

1. B	8. B	15. C	22. C	29. C
2. B	9. B	16. C	23. A	30. A
3. A	10. A	17. B	24. B	31. C
4. A	11. B	18. A	25. B	32. B
5. A	12. C	19. A	26. A	33. D
6. B	13. D	20. A	27. D	
7. A	14. A	21. B	28. B	