Sample Questions

National Registry of Certified Microbiologists
RM: Food Safety and Quality

The National Registry of Certified Microbiologists

AMERICAN SOCIETY FOR MICROBIOLOGY

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 and design of questions and answers.

1. Phase-contrast microscopy enables the human eye to observe structures not visible by bright field-microscopy by modifying the light:

   a. path by 90°.
   b. contrast.
   c. intensity.
   d. wavelength.
   e. amplitude.
   Corresponds to task #3.

2. To achieve Kohler illumination, the height adjustment of the condenser should be:

   a. at its upper stop.
   b. at its lower stop.
   c. halfway between its upper and lower stops.
   d. lowered slightly from its upper stop.
   Corresponds to task #3.

3. What is the greatest drawback in the use of UV-visible spectrophotometry in quantitative analysis?

   a. Inadequate linearity
   b. Inadequate sensitivity
   c. Inadequate specificity
   d. Excessive noise levels
   e. Problems in choosing appropriate blanks
   Corresponds to task #5.

4. Before a laminar flow hood is used, it should be running a minimum of:

   a. 2 hours.
   b. 24 hours.
   c. 15 to 30 minutes.
   d. 5 to 10 minutes.
   e. 1 week.
   Corresponds to task #7.

5. Which quality control procedure is necessary to perform with every batch of media?

   a. Shelf life determination
   b. Endotoxin content
   c. Buffering capacity
   d. Bacteriostatic/fungistatic tests
   e. Sterility check
   Corresponds to task #10.

6. Pyrogallic acid with sodium hydroxide would be added for which of the following functions?

   a. Provide for anaerobic conditions
   b. Provide essential nutrients to the organisms
   c. Alter the pH of the medium
   d. Chelate metallic elements in the medium
   e. Bacteriocidal action
   Corresponds to task #13.

7. When isolating motile, oxidative, nonfermenting gram-negative rods, which of the following should one look for in order to separate them from *Pseudomonas* species?

   a. An oxidative reaction on O/F glucose
   b. Polar pili
   c. The fermentation of dextrose
   d. Peritrichous versus polar flagella
   e. A negative indophenol oxidase reaction
   Corresponds to task #16.

8. A gram-negative organism was isolated with the following characteristics: oxidase-positive, motility-positive, growth at 42°C and production of pyocyanin. The organism isolated is:

   a. *Escherichia coli.*
   b. *Pseudomonas cepacia.*
   c. *Pseudomonas aeruginosa.*
   d. *Staphylococcus aureus.*
   e. *Pseudomonas stutzeri.*
   Corresponds to task # 16.

9. For the formation of immunoprecipitates, the almost universal optimal agar gel (Ouctherlony) concentration is:

   a. 0.03 to 0.15%.
   b. 0.15 to 0.3%.
   c. 0.3 to 1.5%.
   d. 1.5 to 3.0%.
   e. 3.0 to 5.0%.
   Corresponds to task #20.

10. Precipitation tests for the detection of antigens are often carried out using:

    a. the agar diffusion method.
    b. high-performance liquid chromatography (HPLC).
    c. the complement fixation method.
    d. passive agglutination.
    e. polyacrylamide gel electrophoresis (PAGE).
    Corresponds to task #20.

11. Fluorescence detected in immunofluorescent technique is photons emitted from the:

    a. antigen.
    b. antibody.
    c. antiglobulin antibody.
    d. antigen-antibody complex.
    e. fluorescent dye.
    Corresponds to task #20.

12. A microscope outfitted with excitation, suppression, and heat filters is necessary to detect:

    a. peritrichous flagella.
    b. immunofluorescence.
    c. capsules.
    d. beta-hemolysis.
    e. fat soluble granules.
    Corresponds to task #20.

13. Cross-reactivity in serologic reactions may lead to false-positive reactions and can be expected when:

    a. antigens are not in optimal proportions to the antibodies.
    b. there is no electrolyte in the system.
    c. several antigens are closely related.
    d. complement has not been inactivated.
    e. the dilutent is hypotonic.
    Corresponds to task #20.

14. The scientific literature contains a number of references showing that antibiotic potency tests carried out with saturated paper disks are equivalent to the United States Pharmacopeia (USP) cylinder plate method. A laboratory wanting to change from cylinders to paper disks should:

    a. proceed to do so without further ado.
    b. provide definite proof of equivalence of the two tests for each antibiotic from the literature.
    c. provide proof of equivalence for each family of antibiotics for each medium used.
    d. provide some proof of equivalence for each test organism.
    e. provide some proof of equivalence for each antibiotic.
    Corresponds to task #21.

15. The agar diffusion test is the most convenient for antimicrobic susceptibility testing. However, antimicrobial dilution tests may be required if:

    a. simple qualitative information is needed.
    b. isolates are capable of growing at a uniform rapid rate.
    c. the drug has no diffusion problems.
    d. a fairly large number of drugs need to be screened at the same time.
    e. quantitative information is needed.

    Corresponds to task #21.

16. The time at a given temperature required to destroy 90% of the organisms is called the:

    a. thermal death time.
    b. thermal death point.
    c. *D* value.
    d. *F* value.
    e. *Z* value.

    Corresponds to task #23.

17. A 24-hour culture of *Bacillus subtilis* contains 2.4×10^6 CFU/ml. Sequential dilutions of 1:10, 1:5, 1:100, and 1:3 were made from the original samples. The final titer is:

    a. 4.8×10^3 CFU/ml.
    b. 1.6×10^3 CFU/ml.
    c. 8.0×10^2 CFU/ml.
    d. 4.8×10^2 CFU/ml.
    e. 1.6×10^2 CFU/ml.

    Corresponds to task #24.

18. The process of disinfection refers to:

    a. the destruction of disease-producing organisms.
    b. sterilization.
    c. the removal of all bacteria.
    d. the killing of all vegetative bacteria.
    e. the destruction of all bacterial spores.

    Corresponds to task #27.

19. What standard is used for comparing the effectiveness of certain disinfectants?

    a. Iodine index
    b. Phenol coefficient
    c. Alcohol index
    d. Hexachlorophene coefficient
    e. Creosol index

    Corresponds to task #27.

20. In order to identify a gram-negative, aerobic, nonfermenting, oxidase-negative bacterium, one should use a commercial kit which differentiates:

    a. genus *Propionibacterium* from *Fusobacterium*.
    b. genus *Pseudomonas* from *Acinetobacter*.
    c. genus *Fusobacterium* from *Actinomyces*.
    d. genus *Fusobacterium* from *Bacteroides*.
    e. various *Enterobacteriaceae*.

    Corresponds to task #31.

21. Which of the following should be added to a commercial identification kit in order to create anaerobic conditions?

    a. Nitrogen gas
    b. Water
    c. Mineral oil
    d. Plastic wrap
    e. Sterile cotton plugs

    Corresponds to task #31.

22. A laboratory's liability for its hazardous waste ends:

    a. when the hazardous waste is legally removed from the premises.
    b. when the hazardous waste is diluted and poured down the drain.
    c. when the waste has been mixed with hazardous wastes from another source by another party.
    d. when the waste no longer exists or is recycled.

    Corresponds to task #35.

23. The Resources Conversion and Recovery Act (RCRA) for hazardous waste requires:

    a. 60% of all medical waste to be recycled.
    b. medical waste to be disposed of within the state generated.
    c. a separate loading dock for hazardous waste.
    d. a cradle-to-grave tracking system.
    e. licensing requirements for class IV pathogens.
    Corresponds to task #35.

24. The food-poisoning toxins produced by *Staphylococcus aureus* are:

    a. exotoxins.
    b. lethal poisons.
    c. endotoxins.
    d. heat labile.
    e. composed of carbohydrates.
    Corresponds to task #66.

25. *Saccharomyces cerevisiae* var. *ellipsoideus* may be differentiated from *Saccharomyces cerevisiae* by:

    a. pH requirement.
    b. sugar fermentation.
    c. morphology.
    d. ascospore formation.
    e. amino acid requirements.
    Corresponds to task #67.

26. Which of the following is a direct microscopic count technique?

    a. Smear
    b. Microcytic count
    c. Macrocytic count
    d. Spiral count
    e. Acid wash
    Corresponds to task #73.

ANSWERS

1.	a	11.	e	21.	c
2.	d	12.	b	22.	d
3.	c	13.	c	23.	d
4.	c	14.	e	24.	a
5.	e	15.	a	25.	c
6.	a	16.	c	26.	a
7.	d	17.	e		
8.	c	18.	a		
9.	c	19.	b		
10.	a	20.	b		