Sample Questions

National Registry of Certified Microbiologists
RM: Pharmaceutical and Medical Device
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. How does phase-contrast microscopy enable the human eye to observe structures not visible by bright field-microscopy?
   a. It modifies the light path by 90°.
   b. It modifies the contrast.
   c. It modifies the intensity.
   d. It modifies the wavelength.
   Corresponds to task #2.

2. How should the condenser height be adjusted in order to achieve Kohler illumination?
   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 #2.

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
   Corresponds to task #4.

4. What is the minimum time that a laminar flow hood should be running before it is used?
   a. 2 hours
   b. 24 hours
   c. 15 to 30 minutes
   d. 5 to 10 minutes
   Corresponds to task #5.

5. Which quality control procedure is necessary to perform with every batch of media?
   a. Shelf life determination
   b. Sterility check
   c. Bacteriostatic/fungistatic tests
   d. Buffering capacity
   Corresponds to task #8.

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. Bacteriocidal action
   Corresponds to task #9.

7. What distinguishes motile, oxidative, nonfermenting gram-negative rods from *Pseudomonas* species?
   a. An oxidative reaction on O/F glucose
   b. Polar pili
   c. The fermentation of dextrose
   d. Peritrichous versus polar flagella
   Corresponds to task #14.

8. A gram-negative organism was isolated with the following characteristics: oxidase-positive, motility-positive, growth at 42°C and production of pyocyanin. What is the organism isolated?
   a. *Escherichia coli*
   b. *Pseudomonas cepacia*
   c. *Pseudomonas aeruginosa*
   d. *Pseudomonas stutzeri*
   Corresponds to task #14.
9. 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. How should a laboratory make the change from cylinders to paper disks?
   a. Proceed to do so without further ado.
   b. Provide some proof of equivalence for each antibiotic.
   c. Provide some proof of equivalence for each test organism.
   d. Provide definite proof of equivalence of the two tests for each antibiotic from the literature.

Corresponds to task #16.

10. The agar diffusion test is the most convenient for antimicrobial susceptibility testing. However, when would the antimicrobial dilution tests be required?
   a. Simple qualitative information is needed
   b. Isolates are capable of growing at a uniform rapid rate
   c. A fairly large number of drugs need to be screened at the same time
   d. Quantitative information is needed

Corresponds to task #16.

11. What is the time at a given temperature required to destroy 90% of organisms called?
   a. Thermal death time
   b. Thermal death point
   c. D value
   d. Z value.

Corresponds to task #18.

12. A 24-hour culture of *Bacillus subtilis* contains $2.4 \times 10^6$ CFU/ml. Sequential dilutions of 1:10, 1:5, 1:100, and 1:3 were made from the original samples. What is the final titer?
   a. $4.8 \times 10^3$ CFU/ml
   b. $1.6 \times 10^2$ CFU/ml
   c. $8.0 \times 10^2$ CFU/ml
   d. $1.6 \times 10^3$ CFU/ml

Corresponds to task #19.

13. What process does disinfection refer to?
   a. The destruction of disease-producing organisms
   b. Sterilization
   c. The killing of all vegetative bacteria
   d. The destruction of all bacterial spores

Corresponds to task #18.

14. What standard is used for comparing the effectiveness of certain disinfectants?
   a. Iodine index
   b. Phenol coefficient
   c. Alcohol index
   d. Hexachlorophene coefficient

Corresponds to task #18.

15. In order to identify a gram-negative, aerobic, nonfermenting, oxidase-negative bacterium, one should use a commercial kit which differentiates which of the following?
   a. Genus *Propionibacterium* from *Fusobacterium*
   b. Genus *Pseudomonas* from *Acinetobacter*
   c. Genus *Fusobacterium* from *Actinomyces*
   d. Genus *Fusobacterium* from *Bacteroides*

Corresponds to task #14.
16. When does a laboratory’s liability for its hazardous waste end?

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 #34.

17. Which of the environmental conditions listed below would be selective of a mesophilic, anaerobic heterotroph?

<table>
<thead>
<tr>
<th>Temperature</th>
<th>pH</th>
<th>Atmosphere</th>
<th>Energy Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>10°C</td>
<td>7.0</td>
<td>N₂</td>
<td>glucose</td>
</tr>
<tr>
<td>60°C</td>
<td>3.0</td>
<td>air</td>
<td>sulfur</td>
</tr>
<tr>
<td>10°C</td>
<td>7.0</td>
<td>air</td>
<td>glucose</td>
</tr>
<tr>
<td>30°C</td>
<td>7.0</td>
<td>N₂</td>
<td>glucose</td>
</tr>
</tbody>
</table>

Corresponds to tasks #42.

18. According to *Standard Methods for the Examination of Water and Wastewater*, what is the maximum allowable time at 4°C for potable water samples that are to be plated?

a. 6 hours
b. 24 hours
c. 30 hours
d. 36 hours

Corresponds to task #21.

19. In addition to an energy source, what do liquid media require for the growth of all bacteria?

a. Vitamins, a buffer, trace elements, and sulfur
b. A buffer, O₂, vitamins, and a nitrogen source
c. Hydrolytic products of proteins, vitamins and other growth factors, a buffer and trace elements
d. Appropriate sources of C, H, N, P, and S, as well as trace elements

Corresponds to task #9.

20. What are the two most common gases used for plasma sterilization?

a. Hydrogen peroxide and peracetic acid
b. Argon and hydrogen
c. Hydrogen peroxide and ethylene oxide
d. Hydrogen peroxide and acetic acid

Corresponds to task #46.
ANSWERS

1. a 11. c
2. d 12. b
3. c 13. a
4. c 14. b
5. b 15. b
6. a 16. d
7. d 17. d
8. c 18. c
9. b 19. d
11. a 20. a