

Bacteria Practice Exam

Part A: Multiple choice

1. Which is a characteristic of bacteria
 - a. prokaryotes
 - b. eucaryotes
 - c. multi celled
 - d. sexual reproduction

2. These bacteria are rod shaped
 - a. cocci
 - b. bacilli
 - c. spirillum
 - d. staphylococci

3. Which of the following **is not one** of the domains used to classify organisms?
 - a. Archae
 - b. Eukarya
 - c. Bacteria
 - d. Animals

4. This type of cell **does** contain a distinct nuclear membrane.
 - a. prokaryote
 - b. eukaryote
 - c. bacteria
 - d. virus

5. The process of conjugation is important to bacteria because
 - a. it produces many exact copies
 - b. it takes more time to reproduce this way
 - c. it produces variation in the offspring
 - d. it produces bacteria that cause disease

6. Many bacteria withstand harsh environments (like heat) by
 - a. producing endospores
 - b. by becoming immune to the dangerous substance
 - c. by dividing quickly
 - d. by changing their antigens

7. A best guess to explain an observation
 - a. hypothesis
 - b. theory
 - c. scientific fact
 - d. controlled experiment

8. Bacteria that live on the human body or other organism are called?
 - a. pathogenic
 - b. facultative anaerobes
 - c. symbiotic
 - d. non-symbiotic

9. Which of the following structures would not be found in bacteria?
 - a. plasmid
 - b. cell membrane
 - c. ribosomes
 - d. inner protein coat

10. Which of the following describes bacteria that recycle nutrients by consuming dead material?
 - a. facultative anaerobes
 - b. bacterial agents
 - c. decomposers
 - d. plasmids

11. Bacteria reproduce asexually and produce many identical offspring by
 - a. conjugation
 - b. budding
 - c. mitosis
 - d. binary fission

12. Which of the following is not a type of bacteria?
 - a. spirillum
 - b. flagellum
 - c. cocci
 - d. bacilli

13. A sample of anaerobic bacteria will most likely be found
 - a. in your stomach
 - b. on your hands
 - c. between your toes
 - d. at the back of your throat

14. Which of the following describes the domain known as Archaea?
 - a. bacteria that live in normal conditions
 - b. single celled eucaryotes
 - c. multi celled procaryotes
 - d. bacteria that live in extreme conditions

15. Bacteria that can survive in the presence of oxygen only are called
 - a. aerobes
 - b. obligate anaerobes
 - c. photosynthesizers
 - d. facultative anaerobes

16. Which of the following may slow bacterial growth but not kill bacteria?
 - a. refrigeration
 - b. heating
 - c. freeze drying
 - d. acids like vinegar

17. When eating at a restaurant, you could get sick from a hamburger even if it is thoroughly cooked. What is the best explanation for this?
 - a. because bacteria may have been present before cooking
 - b. because bacteria may form endospores
 - c. because hamburger meat always has bacteria in it
 - d. because bacteria are only found on the surface of the meat

5. Bacteria often become resistant to antibiotics. Bacteria can be cultured (grown) using a nutrient agar that contains all the nutrients needed for survival. The following experiment was used to test the effectiveness of 2 antibiotics in controlling bacterial growth. Paper discs were soaked in antibiotic and the antibiotics used were tetracycline and penicillin.

Use the following experimental set-up to answer the questions below.

Agar plate 1

bacteria + agar

Agar plate 2

bacteria + agar
+ disc of tetracycline

Agar plate 3

bacteria + agar
+ disc of penicillin

- a. Name 3 factors that would have to be controlled for this experiment to work. (3 marks)

 - b. Why was an agar plate 1 used? (2 marks)

 - c. What evidence would tell you that the antibiotics worked? (2 marks)

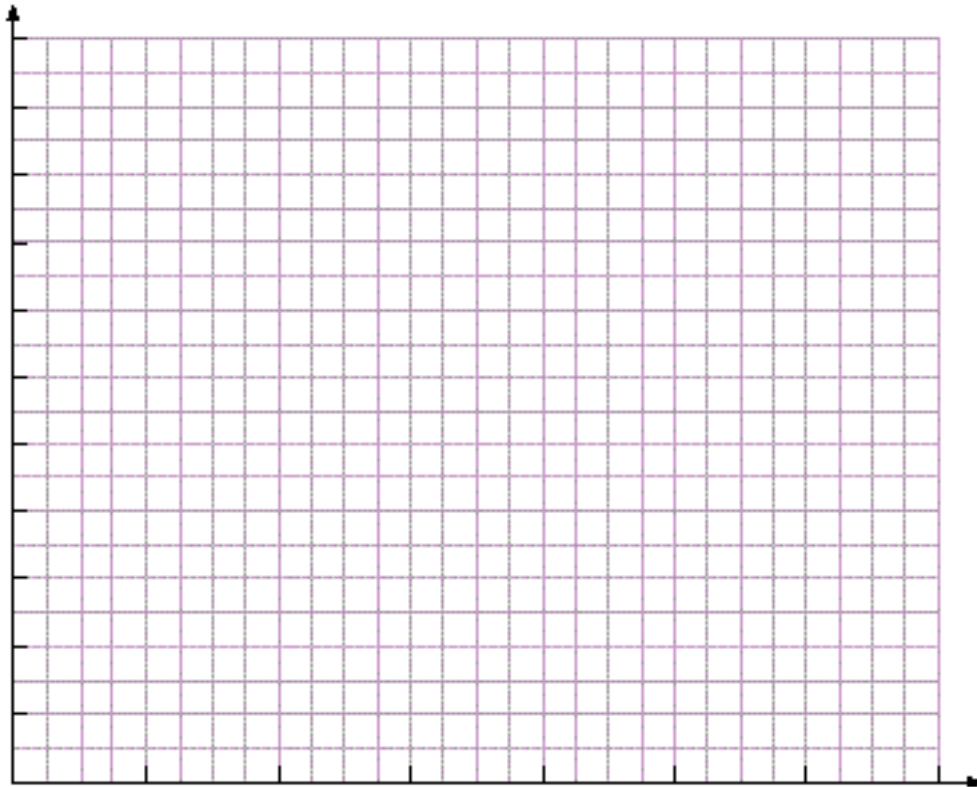
 - d. Why would scientists run this experiment many times before they announced their results? (2 marks)
6. When a bacterial cell is dividing, it needs to create new cell walls. Penicillin acts as an antibiotic by preventing the cross linking of proteins in the new cell wall. The new cell wall is very weak and the bacterial cell will rupture. Why doesn't penicillin affect human cells? (1 mark)
7. Tetracycline, another antibiotic, interferes with protein synthesis at the bacteria's ribosomes. Explain why large doses of tetracycline may have negative effects on humans. (1 mark)

Part C: Graphing and Data Analysis

Under ideal circumstances, bacteria can reproduce (double) every 15 minutes.

1. Graph the following data that show bacteria reproduction rate. (4 marks)

<u>Time (minutes)</u>	<u>number of bacteria</u>
0	1
15	2
30	4
60	8
90	16
120	32
150	64
175	128
190	256
205	150
220	100
235	50
250	5



2. Develop a hypothesis to explain what might be happening to this bacteria population. (2 marks)

3. Use your graph to estimate the number of bacteria present at 135 minutes. (1 mark)

4. Describe 2 things that might cause these bacteria population to grow in numbers after 250 minutes. (2 marks)