

**Pathogenic Microbiology
Examination #1
Fall Semester 2007**

Student name: _____

Score: _____ points out of 65points

Your percent score is _____%

Students:

- 1. Please use a #2 pencil on the scantron sheet.**
 - 2. Each scantron question has a point value of 0.91 points**
 - 3. Record any erasures on the list provided at the front of the room. Protect yourself, as the verdict of the scoring machine is final.**
 - 4. Feel free to ask for further information about any of the questions.**
 - 5. The total value of this portion of the examination is 45.5 points**
-
1. The type of microscope that you make use of during the laboratory is most properly called a ___ microscope.
 - A) Concave
 - B) Confocal
 - C) Dissection
 - D) None of these
 2. If your microscope was equipped with 15X oculars and a 60X objective, the total magnification capability of the instrument would be ___ X.
 - A) 75
 - B) 900
 - C) 1800
 - D) None of these
 3. The laboratory exercise in your manual which dealt with the microscope indicated that there are two major factors which control the resolving power of a microscope. One of these factors is ____.
 - A) The optical density of the objective
 - B) The refractive index of the oculars
 - C) The wavelength of the illumination used by the microscope
 - D) None of these

4. Which of the following microscopes has the best resolving power?
 - A) Microscope A, RP of 1mm
 - B) Microscope B, RP of 0.1mm
 - C) Microscope C, RP of 0.01mm

5. The immersion oil that you make use of in the laboratory ____ the resolving power of your microscope
 - A) Increases
 - B) Decreases
 - C) Has no effect on

6. As you move from using the 4X objective of your microscope to the 100X objective of the instrument, the depth of field of the optical system ____.
 - A) Increases
 - B) Decreases
 - C) Remains the same

7. If your microscope has a resolving power of 1mm (a very poor resolving power), this means that objects that are less than 1mm apart will ____.
 - A) Appear as two distinct objects
 - B) Appear as a single object
 - C) Will not be seen at all

8. It was noted in class, that A. Leeuwenhoek spent a very long time communicating his observations to a scientific society known as ____.
 - A) The National Science Agency of Holland
 - B) Sigma XI
 - C) The French Royal Society
 - D) None of these

9. In my brief discussion of the history of microbiology I noted Leeuwenhoek because it was the first individual to ____.
 - A) Report their existence
 - B) Connect them with the ability to cause disease
 - C) Show that they had the ability to serve man in many key ways
 - D) None of these.

10. Some time was spent commenting on Pasteur's work on Pebrine'. This problem affects ____.
 - A) Sheep
 - B) man
 - C) Corn
 - D) None of these.

17. The curved surface of water that you see in graduated cylinder is called a meniscus. This is shown in the sketch shown below where, on the meniscus do you read the volume in the cylinder?

18. The concept of the domain has grown out the 1970s work of ____.

- A) Watson
- B) Dillard
- C) Woese
- D) None of these

19. Some time was spent commenting on Mad Cow Disease. This condition is now attributed to infection with ____.

- A) Bacteria
- B) Prions
- C) Protozoa
- D) None of these

20. At the present time, man has identified approximately ____ different elements..

- A) 100
- B) 500
- C) 1000
- D) None of these.

21. Chemical compounds which exhibit carbon to carbon bonding are usually classed as being ____ in nature.

- A) Proteosomic
- B) Organic
- C) Nonorganic
- D) None of these.

22. "Particles" which carry an electric charge are referred to as ____.

- A) Ions
- B) Molecules
- C) Atoms
- D) None of these

37. Sometime was spent discussing that class of lipids known as phospholipids. These molecules are very important in the formation of the so-called ___ of cells.
- A) Polyribosomes
 - B) Cell wall
 - C) Plasma or cell membrane
 - D) None of these
38. If a chemical substance undergoes an oxidation, it has lost ___.
- A) Electrons
 - B) Protons
 - C) Oxygen
 - D) None of these.
39. The pH scale runs between ___ and ___.
- A) 0 and 10
 - B) 0 and 7
 - C) 1-10
 - D) None of these.
40. pH readings which are less than ___ are considered to be acidic nature.
- A) 3
 - B) 5
 - C) 7
 - D) None of these.
41. A change in the pH of a fluid from 4 to 7 would indicate that the material had ___.
- A) Increased in acidity by factor of 3
 - B) Decreased in acidity by a factor of 1000
 - C) Decreased in acidity by a factor of 3
 - D) None of these

The following questions are based on the diagram shown below.

42. The above-mentioned diagram is that of ____.
- A) Insulin
 - B) RNA
 - C) ATP
 - D) None of these
43. The molecule indicated by the number 1 is ____.
- A) Adenine
 - B) Cytosine
 - C) Guanine
 - D) None of these.
44. The molecule indicated by the number 2 is ____.
- A) Ribose
 - B) Deoxyribose
 - C) Guanine
 - D) None of these.
45. The dashed lines indicated by the arrow are indicating ____.
- A) Covalent bonds
 - B) Ionic bonds
 - C) Hydrogen bonds
 - D) None of these.

The following questions are based on the assigned article

46. C. diff infections normally involve the ____ of the human body.
- A) Nervous system
 - B) Digestive tract
 - C) Skeletal system
 - D) None of these
47. The article noted a chemical polymer by the name of tolevamer. This material may have a role in the treatment of C. diff infections because of its ability to ____.
- A) Kill in bacterium responsible for the infection
 - B) Cause the production of useful antibodies by the body to combat the infection
 - C) Absorb the toxin responsible for the symptoms of the disease
 - D) None of these.
48. The commonest “cause” for C. diff infections is the ____.
- A) Ingestion of contaminated food and water
 - B) Use of antibiotics
 - C) Insect bites
 - D) None of these
49. The symptoms of C. diff infections have been attributed to ____.
- A) Digestive enzymes produced by the bacterium
 - B) Exposure to a toxin produced by the bacterium
 - C) A misdirected attack by our body’s immune system
 - D) None of these.
50. Mark answer A. This is a “free” question.

Students:

- 1. The following portion of the examination has a point value of 19.5 points.**
- 2. Each question has its point value indicated at its end.**
- 3. You may use either pencil or pen in answering this section of the examination.**
- 4. If you are to list items, for your own protection, list only the number that is being requested.**
- 5. Please use complete sentences where appropriate**
- 6. Lastly, reread your answers before turning in your paper. Remember, I can only read and grade what you have actually written, not what you wanted to write.**

1. The world of carbohydrates is frequently broken down into 3 major subclasses based on the results of their hydrolysis. What are these classes? Define each in terms of what occurs (or doesn't) when hydrolysis of them occurs. **(3pts)**

Class name	Definition
1.	
2.	
3.	

2. Make the following metric conversions: **(3pts)**

25.5 centimeters	millimeters
14 meters	centimeter
456 milliliters	liters
100 grams	milligram
100 grams	kilogram
1.2 millimeters	Micrometers

3. As noted in your textbook, there were several reasons noted for the development of the so-called emerging diseases. You should be able to cite two such reasons. **(2pts)**

1.
2.

4. One of the most famous groups of statements in all of microbiology is those which constitute the postulates of Robert Koch. Please state them in the table that is provided. **(2pts)**

1.
2.
3.
4.

5. During the laboratory dealing cells, you had the opportunity to view 3 different living organisms that consisted of but a single cell. Name 2 of those organisms. **(2pt)**

1.
2.

6. There are 4 elements that are always found in protein molecules. What are they?
(2pts)

1.	2.
3.	4.

7. While protein molecules may be used as an energy source to “run” living organisms, it was noted in class that they have a wide variety of additional uses. You should be able to cite 2 such uses. **(2pts)**

1. Proteins can be used for
2. Proteins can be used for

8. What is the actual scientific name of the “C. diff” bacterium that was the subject of the article you needed to read for this examination? The CDC website indicated 6 different classes of people who are at increased risk for C. diff infections. List 3 of those groups.
(3.5pts)

The scientific name of C. diff is

1.
2.
3.