Microbiology Final

Multiple Choice

1. The original theory which explained the origin of life was:
   a. Homeogenesis b. Biogenesis c. Spontaneous Generation

2. Pasteur eliminated _____ from his experimental group?
   a. Oxygen b. Dust c. water d. food

3. The special flask used by pasteur had a(n):
   A ____ double neck so two substances may be added at the same time.
   B ____ bent neck to prevent airborne particles from entering into the main body of the flask
   C ____ secondary opening at the base to allow for drainage.
   D ____ inverted upper edge to prevent spillage while swirling.

4. The concept of Spontaneous generation is no longer accepted. We now now that life comes from life. This is:
   a. Biogenesis b. Creation c. Evolution

5. The process of heating food prior to sealing it into a container is called:
   a. Homogenization b. Fermentation c. Pasteurization

6. This individual was the first person to see bacteria using a simple microscope:
   A ____ Koch
   B ____ Galileo
   C ____ Leeuwenhoek
   D ____ Hooke

7. Robert Koch studied
   A ____ Disease Transmission
   B ____ Food Spoilage
   C ____ Antibiotics
   D ____ Immunization

8. 8. Prior to Koch's experiment, disease was believed to be caused by _____.
   a. bacteria b. evil spirits c. lack of sanitary food storage d. Bodily fluids

---

Bacterial Structure

9. How does a prokaryotic cells' small size make them different than eukaryotic cells?
   A ____ They multiply more rapidly.
   B ____ They grow faster.
   C ____ They can easily meet their nutritional needs
   D ____ All of these.
   E ____ None of these

10. On Earth, there are more _____.
    a. prokaryotes b. eukaryotes c. tropikariotes d. HA trick question, they are the same.

11. Bacillus bacteria are what shape?
    A. Round b. Rod c. Elliptical d. Spiral

12. A prokaryote that hates oxygen is a
    a. anacephalic b. anaerobic c. antiseptic d. aerodynamic

13. What shape are helical bacteria?
    a. square b. spherical c. cylindrical / rod d. triangular

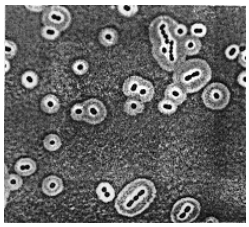
14. Which of the following does the cell membrane do:
    a. Control of transport b. control of growth c. control of reproduction
    d. none of these

15. Flagella are used for:
    a. eating b. reproduction
    c. digestion d. propulsion

16. Which of these is a benefit of a capsule?
    a. speeds up reproduction
    b. prevents digestion
    c. stores oxygen
    d. none of these

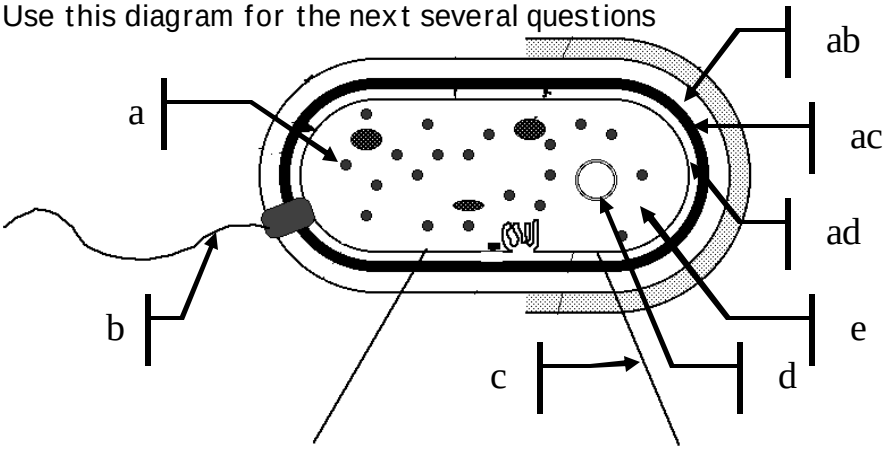
17. What is the only internal organelle that both prokaryotes and eukaryotes both have?
    a. ribosome b. nucleus
    c. mitochondria d. none of these

18. What is light colored structure surrounding these cells?



A _____ Peptidoglycan
B _____ Capsule
C _____ Lipopolysaccharide
D _____ Boogers

Use this diagram for the next several questions



19. Which labeled structure is a Pili?
20. Which labeled structure is a ribosome?
21. Which labeled structure is the cell membrane?
22. Which labeled structure is the only structure found on a gram – bacteria?

---

23. Which is a function of pili?

A _____ Exchanging small bits of DNA with another bacteria
B _____ to kill other bacteria.
C _____ Two uses for pili are for a defense mechanism
D _____ Used for movement

24. Which is a function of pili?

A _____ Grabbing onto other cells
B _____ to kill other bacteria.
C _____ Two uses for pili are for a defense mechanism
D _____ Used for movement

25. What is a functions of the cell wall?
A _____ To control diffusion
B _____ To dispose of waste.
C _____ To withstand Turgor pressure.
D _____ To Identify other organisms

26. Which of the following is the correct order of the growth curve?
a. Lag phase, death, exponential growth, steady
b. death, exponential, steady, lag
c. exponential, steady, lag, death
d. lag, exponential, steady, death

27. What is the bacterial growth stage where the bacteria are using their food at maximum efficiency?
a. Death
b. Lag Phase
c. Exponential Growth
d. Steady State

28. Bacteria grow exponentially, humans reproduce _____.
a. steadily
b. linearly
c. infrequently
d. with Barry White music

29. What causes the population to reach a stationary phase?
a. buildup of waste b. lack of food
c. lack of space d. all of these

30. If you have a colony of 2 bacteria and they reproduce every 30 minutes, how many would there be in 2 hours?
a. 16 b. 32 c. 64 b. 256

31. What exactly does heat do when used to kill bacteria?
A _____ it denatures proteins, causing them to stop working.
B _____ it makes them melt
C _____ its makes the cell plasma boil until they pop
D _____ it makes them suffer bad sun burn

32. Why doesn't heating a bacteria kill all bacteria?
A _____ Some bacteria like bunsen burner flames.
B _____ Bacteria multiply too quickly and the heat wouldn't be able to get to them all.
C _____ Heat kills all bacteria and this question is wrong.
D _____ Some bacteria make endospores that survive heating

33. What is the difference between "static" and "cidal" treatments?
A _____ "static" are treatments that inhibit rather than kill and "cidal" are treatments that kill.
B _____ "static" are treatments that help good bacteria survive, and "cidal" are treatments that inhibit bacteria cells.
C _____ "cidal" are treatments that keep cell growth to a minimum, and "static" are treatments that kill bacteria.

34. What is the difference between sterilization and disinfection?
A _____ Sterilization inhibits bacteria from growing where as disinfection kills all harmful bacteria in the body.
B _____ There are degrees of sterility where as there are no degrees of sanitation.
C _____ Sterilization kills all microbial life and disinfection just reduces the number of pathogens to where they pose no danger of disease.
D _____ Sterilization do not kill endospores and disinfectants do.

35. What is the main risk any time you treat bacteria with an antibiotic?

A _____ doctors don't know how to prescribe antibiotics
B _____ the bacteria may become resistant to the antibiotic
C _____ it is wasteful for the science community because it costs a lot to make the stuff
D _____ It will kill more than just the disease causing

36. Which of these would kill a bacteria without killing you?

A _____ Destroy the Cell Wall
B _____ Eliminate its ribosomes
C _____ Stop its cell respiration
D _____ Dissolve the lipids in its membrane

37. What do most food additives prevent the growth of?

A _____ Fungi
B _____ Bacteria
C _____ Viruses
D _____ Trick question, they don't do anything to microbes, they keep foods from drying out.

38. Which Germicide is used in gas form and is useful for sterilizing large items like mattresses?

A _____ Ethylene oxide
B _____ Glutaraldehyde
C _____ Phenol and Phenolics

39. What is the mode of action for a Surfacsant?

A _____ Dissolves oils and surface dirt that bacteria feed on
B _____ Kills all living bacteria
C _____ Stops bacterial reproduction the surface

40. What do bacteria in the digestive tract help humans to do?
    a. Clean the stomach
    b. Digest plant materials
    c. Create ulcers
    d. Digest fats

41. Question: The definition of acquired resistance is:
    a. defense mechanism you are born with
    b. resistance your body learned throughout your life
    c. the part of your immune system found in your stomach

42. Question: Which cell does the HIV virus invade?
    a. Killer T-cell
    b. helper T-cell
    c. B-cell
    d. Macrophage

Matching - world disease

43. Carrier	a. A method of stopping transmission
44. Reservoir	b. The cute little monkey in "Outbreak"
45. Epidemic	c. When a bacteria no longer is killed by a drug
46. Isolation	d. When viruses infect both plants and animals
47. Transmission	e. The pool of organisms where a disease causative agent lives
48. Mutation	ab. An organism that carries a virus but suffers no symptoms
	ac. How viruses change
49. Resistance	ad. Disease at a national level
50. Betsy	ae. How a disease spreads

Part 2

Multiple Choice - Method of Transmission

51. Which of these describes how well an organism causes illness?
    a. Invasiveness b. Infectiousness
    c. Virulence d. Funkiness

52. Which of these would represent the reservoir for Rabies?
    a. Only Humans b. All Mammals c. All Primates d. all animals

---

53. Phagocytosis…
    a. is the process of blowing up cells
    b. is shrinking cells into raisins
    c. is the process of eating cells
    d. is the process of not eating cells

54. The AIDS virus method of transmission is:
    a) Close Contact
    b) Body Fluid (Open)
    c) Environmental (Closed)
    d) Body Fluid (Closed)

55. What is a pandemic disease?
    a. A global disease
    b. A national level disease
    c. A big disease
    d. A small disease

56. What do the phagocytes do in the human immune system?
    a. Identify the invading organism
    b. Eat the organism
    c. Prevents the organism from reproducing
    d. Prevents other cell from getting infected by the invading organism

57. _____ work by instructing Killer T-cells to destroy an antigen.
    a. antibodies b. antigens c. Auntie Mae d. The ever popular "None of these"

58. Why is competitive inhibition beneficial in your body?
    a) Bacteria kill off the harmful viruses for you.
    b) Bacteria convert harmful viruses into something you can use.
    c) Bacteria in your body already take up all the space and there is nowhere for the harmful viruses to grow.

59. Antigen	a. Produce antibodies
60. Antibody	b. Causes tissue to swell with blood
61. Monocytes	c. Destroy any tagged antigen
62. Helper T Cell	d. Any invader
63. Killer T Cell	e. Eat/ Capture Antigen for ID
64. B Cell	Ab. Mark Antigen for Destruction
65. Histamine	Ac. Tell B cells what antibody to make
	Ad. Alert B cells of invaders

Multiple Choice - Innate Immune Response

66. Your innate immune response is one you"
    a. learn over time b. are born with c. acquire from a vaccination

67. Which of the following is not a Function of Histamines?
    a. Swelling b) Digestion of Bacterial cells walls c) Fever blood flow

68. How many different types of blood cells are involved in innate immunity?
    a)4 b)3 c)2 d) l

69. Which of your blood cells is responsible for identifying, but not killing an invader?
    a. Helper T b. Killer T c. B cell d. Phagocyte

70. Which cells remain in your bloodstream to be ready for any repeat exposure to an invader?
    a. Helper T b. Killer T c. B cell
    d. Phagocyte

71. Which of these cells can work on only one specific antigen?
    a. Helper T b. Killer T c. B cell
    d. Phagocyte

Matching- antibodies

72. Attacks 10 targets at once
73. Found in mothers milk
74. Crosses the Placenta
75. Involves allergies
76. Not a function of antibodies
77. What they attach to

a. IgG
b. IgM
c. IgA
d. IgE
e. Dissolve bacterial cell wall
ab. lipid molecules
ac. protein molecules

You have been performing experiments with two strains of bacteria that you isolated from the same environment. You have measured the doubling time of each species separately and report that:

- Species 1 doubles every 60 minutes
- Species 2 every 120 minutes.

You go on to perform an experiment where you mix and grow the two strains together in the same broth. Starting with equal numbers of each bacteria (10 cells/ml), you incubate the mixed culture for 2 hours.

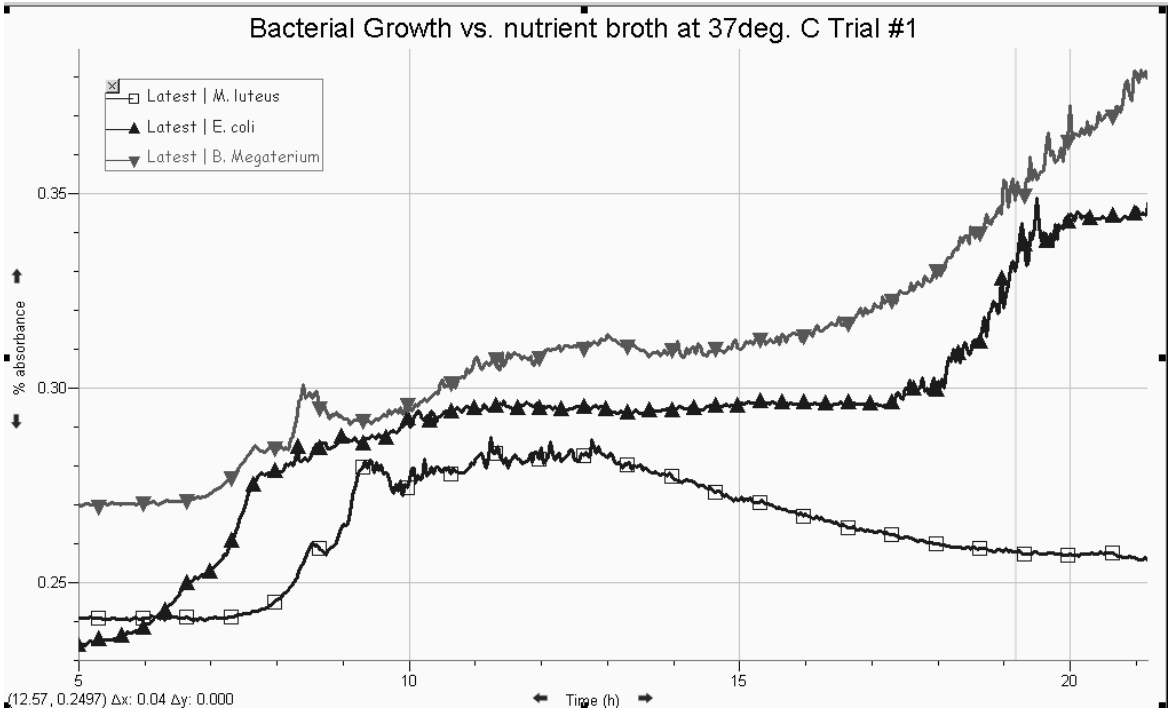
- At that point, you determine that both species have increased in number and that the total cell concentration (both strains combined) is now 250 cells/ml.

78. This problem requires your knowledge of :
    a. Exponential growth
    b. Bacterial Morphology
    c. Disease Transmission
    d. Immunity

79. Which of the following is a correct analysis of the data:
    A. The mixed culture is consistent with the expected growth rate
    B. The mixed culture did not increase as rapidly as you predicted
    C. The mixed culture increased more rapidly than you would have predicted
    D. This question is entirely too complicated for me to answer
    E. I have decided NEVER to become a microbiologist

Refer to this graph for the next several questions. The lines represent the increase in absorbance of light in a test tube. It is the same kind of experiment as your experiment.

Absorbance = amount of light passing through the tube.



Data Analysis and conclusions – multiple choice

80. Which of the following describes the correct relationship between absorbance and bacterial growth:
    b. an increase in absorbance corresponds to an increase in growth
    c. an increase in absorbance corresponds to a decrease in growth
    d. absorbance has no correlation to growth.
    e. Bacteria can't swim, so the whole idea is stupid!!

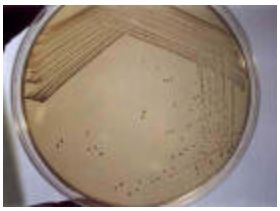
81. Which of the following is a hypothesis that this experiment might be testing?
    a. B. megaterium will have the fastest growth rate at 37 deg C.
    b. E. coli like sucrose best.
    c. Bacteria grow best in warmth.
    d. M. luteus is sexier than B. megaterium!!

82. Which of the following interpretations of this data are true?
    a. At 37 deg C, B. megaterium grew slightly slower than E. coli.
    b. At 37 deg C, E. coli did not grow substantially faster than M. luteus.
    c. At 37 deg C, M. luteus grew slowly because it was extremely unhappy.
    d. At 37 deg C, B. megaterium grew substantially faster than M. luteus.

Lab Vocabulary and Procedures

83. Petri Dish	a. Measures small amounts of liquid
84. Pipette	b. To grow at an optimum temperature
85. Agar	c. Color depend on cell wall type
86. Incubate	d. The generic term for any bacterial nutrient
87. Autoclave	e. A visible group of bacteria
88. Inoculate	Ab. To sterilize something using heat
89. Colony	Ac. Plate like container for growing bacteria
90. Gram stain	Ad Tube for growing bacteria
91. Medium 92. Spread Plate 93. Streak Plate	Ae. To place bacteria on sterile media Ae. A psychic Bc. Gel like bacteria food Bd. Done with wire loop to physically separate bacteria Be. Done with glass "hockey stick" to count bacteria

94. The diagram is an example of a _____.



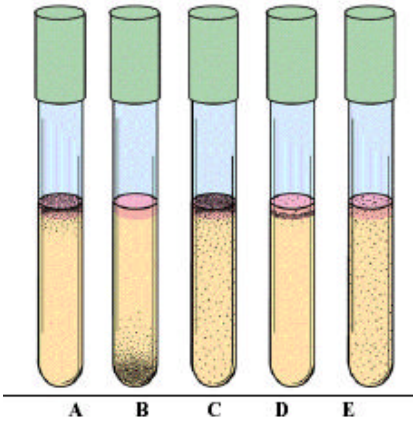
a. spread plate b. streak plate c. slant plate d. d. coliform plate

95. Petri dishes like the one pictured above must be incubated in the following position:

a. upside down b. right side up

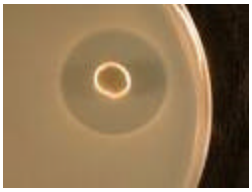
96. Which of the tubes on the right show heavy sedimentation?

97. Which of the tubes on the right show a pellicle AND no turbidity?



98. What do you call the ring that is surrounding the antibiotic disk pictured below?

a. ring of elimination b. zone of annihilation c. circle of abominationd. zone of inhibition



99. Which of these was NOT a bacteria we worked with in lab?

a. Micrococcus luteus b. Serratia marcescens c. Eschericia coli d. Bacillus megaterium

Short Answer: (2 points each = 18 points total)

Topics:

- What topic was the most interesting to you and why?

- What topic was the least interesting and why?

Labs:

- What lab activity did you enjoy the most? Why?

- What lab activity did you learn the most from? Why

- What lab was a complete waste of time and why?

Journal:

- Was the Lab Journal a useful way to organize your lab instructions and data? Is there anything you would have changed about it?

- Was the Lecture Journal useful? If so what was useful about it?

- Is there anything you would have changed about how we used it or what activities we wrote in it?

Degree of Challenge:

- What did you think about the level of the material? Was it too advanced or too basic? Why?