TEST IV

Bio 425
Spring 2007

_____
Name

1. Fill in the Blank (2 points each)

_____ 1. ___ is the genus of bacteria that causes spotted fevers such as typhus.

_____ 2. Four corners disease is caused by a ___virus.

_____ 3. *Borrelia burgdorferi* causes ___ disease.

_____ 4. Plague is spread from one host to another by___.

_____ 5. ___ plague is the most contagious form of the disease and often starts epidemics.

_____ 6. The most deadly waterborne disease caused by a member of the genus *Salmonella* is ___.

_____ 7. *Listeria monocytogenes* often cause problems in prepackage food because it is ___.

_____ 8. ___ dysentery is caused by *Entamoeba histolytica*.

_____ 9. The most severe type of food poisoning is caused by ___ *botulinum*.

_____ 10. Legionnaires disease is treatable with the antibiotic ___.

_____ 11. A common technique in genetic engineering is to make DNA from mRNA using the enzyme, ___.

_____ 12. Sticky ends are sealed in recombinant molecules using the enzyme, ___.

_____ 13. *E. coli* ,the most common host for recombinant work, has the inherent problem of producing ___ which must be removed if the product is to be ingested or injected.

_____ 14. ___ vectors insure that the recombinant molecule will be pumped out of the producing cell.

_____ 15. Yeast ___ chromosomes are used to store large pieces of foreign DNA for sequencing at a later time.

_____ 16. ___ inactivation is a technique used to detect the insertion of foreign DNA into a cloning vector by the lose of a phenotypic trait of the vector.

_____ 17. Site directed mutagenesis creates ___ mutations.

_____ 18. The enzyme, ___, is the key in making the PCR reactions work.

_____ 19. The ___ plasmid is able to conduct "natural" genetic engineering in plant.

_____ 20. A thermo stable enzyme, ___, is added to some laundry detergents to help remove stains.

_____ 21. Wine is converted aerobically to ___.

_____ 22. Sludge digester produces the gas, ___, which can be sold commercially.

_____ 23. ___ metabolites are produced during the stationary phase of bacterial growth.

_____ 24. ___ are used to introduce oxygen in the fermentors.

_____ 25. The liquid mixture that is actually

fermented to produce beer is called the ___.

_____ 26. ___ is added to some wines to inhibit the growth of the naturally occurring yeast on the grape.

_____ 27. ___ filters are the most common way of secondary treatment of sewage in cities.

_____ 28. Bacteria are different from Archaea in their cell wall composition and their ___.

_____ 29. ___ in situ hybridization, also called FISH, is used to visualize individual bacteria within a group.

_____ 30. ___ methyl esters, also called FAME, is often used to identify anaerobes.

_____ 31. DNA chips rely on DNA/DNA ___ to detect specific sequences of DNA.

_____ 32. In bacteria, rRNA is often used as a(n) ___ chronometer.

_____ 33. Mitochondria and chloroplast evolved from free living bacteria through the process of ___.

_____ 34. Antibody ___ refers to the concentration of antibody in a sample.

_____ 35. ___ antibodies allow for visualization of the tagged bacteria under an epifluorescent microscope.

_____ 36. ELISA stands for enzyme linked ___ assay.

_____ 37. Because viruses are difficult to grow in the hospital they are often magnified by ___ and identified using probes.

_____ 38. The magnifying effects of ___ make ELISHA such a sensitive tool.

_____

39. ____ columns can be used to demonstrate bacterial stratification in the sediment.

II. Briefly Define (2 points each)

40. Asilomar conference of 1975

41. Luminescent reporter gene

42. selective/differential media

43 DAPI counts

III. Discussion

44. What is the difference between an intoxication and an infection type food poisoning? Give an example of each. **(5 points)**

45. Define coliform and give me the differences in definitions and isolation techniques for coliforms vs. fecal coliforms. **(5 points)**

46. Once a foreign gene has been successful cloned it may not produce the recombinant protein is sufficient quantities. List at least 2 ways that you would try to insure that the recombinant protein is produce in its new host. **(4 points)**

TEST IV

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I. Bacterial (B) or viral (V) infections (1 point each)

____1. Legionnaires disease
____2. Typhoid fever
____3. Peptic ulcers
____4. Mumps
____5. Hepatitis
____6. Lyme disease
____7. Syphilis
____8. Botulism
____9. AIDS
____10. Gonorrhea
____11. Common cold
____12. Cholera
____13. Rabies
____14. German measles

II. Fill in the Blank (2 points each)

_____ 15. Precipitin reactions bring molecules out of solution whereas____ reactions bring particles out of suspension.

_____ 16. Vaccines made from denatured exotoxins are called ___.

_____ 17. A vaccine that protects against multiple diseases is said to be ___.

_____ 18. ___ diseases are the result of a mistake in the immune system which causes the immune system to attack its host.

_____ 19. Monoclonal antibodies are made by fusing cancer cells with B cells to from a(n) ___.

_____ 20. The immunity conferred on a baby raised on mothers milk is an example of a type of immunity called ___.

TEST IV
Bio 425
Fall 2006

_____
Name

I. Match the genus/group with disease (1 point each)

____1. *Corynebacterium*	a. whooping cough
____2. *Bordetella*	b. German measles
____3. Rhinovirus	c. gonorrhea
____4. Rubeola	d. red measles
____5. Varicella	e. typhoid fever
____6. *Neisseria*	f. chickenpox
____7. *Treponema*	g. typhus
____8. *Helicobacter*	h. Lyme disease
____9. *Rickettsia*	i. plague
____10. *Coxiella*	j. cholera
____11. *Borrelia*	k. peptic ulcers
____12. *Yersinia*	l. tuberculosis
____13. *Clostridium*	m. diphtheria
____14. *Vibrio*	n. botulism
____15. *Entamoeba*	o. common cold
____16. *Salmonella*	p. syphilis
____17. *Mycobacterium*	q. dysentery
____18. Rubella	r. Q fever

II. Fill in the Blank (2 points each)

_____ 19. The MMR vaccine gives immunity against red measles, German measles and ___.

_____ 20. Influenza viruses are identified by 2 surface antigens, hemagglutinin and ____.

_____ 21. Lyme disease is a zoonose spread from animals to human by ___.

_____ 22. Legionnaire disease is typically spread thorough contaminated ____.

_____ 23. Four corners disease is caused by a virus in the ___ group.

_____ 24. *Listeria monocytogenes* is often associated with prepared foods because it is ____.

_____ 25. *Clostridium* ___ causes a mild food poisoning often associated with un-refrigerated gravy.

_____ 26. ___ plague occurs naturally in wild animals and only occasionally infects man.

_____ 27. The industrial process of ___ refers to carefully inoculating increasingly larger volumes of culture.

_____ 28. Many antibiotics are ___ which means they are produced during the stationary phase of the growth curve.

_____ 29. In some wine the chemical, ___, is added to insure successful fermentation.

_____ 30. ___ is the name of the carefully prepared liquid that is actually fermented to make beer.

_____ 31. Primary sewage treatment is used to remove the solid material which is called___.

_____ 32. ___ is often added in water treatment plants to increase coagulation.

_____ 33. In municipal water treatment plants the final step in treatment is to sterilize the water with either chorine or ___.

_____ 34. Anaerobic digestion of sewage solids produces the gas, ___, which can be used or sold.

_____ 35. The aerobic breakdown of wine produces ___.

_____ 36. Recombinant pharmaceuticals produced in *E. coli* must be purified to remove ___

_____ 37. To insure appropriate transcription of the cloned gene, the vector must contain the proper ____.

_____ 38. The enzyme, TAQ, is the key component in the ___ technique.

_____ 39. ___ directed mutagenesis produces knockout mutations.

_____ 40. A(n) ___ vaccine confers immunity to several diseases.

_____ 41. FISH stands for fluorescent ___ hybridization.

_____ 42. The ___ content of DNA is constant in all members of a bacterial species.

_____ 43. ___ *Manual of Systematic Bacteriology* is the definitive reference book for bacterial taxonomy.

_____ 44. Two things that are different in Bacteria than in Archaea are cell wall composition and ___.

_____ 45. ___ columns can be used to display bacterial diversity in sediment columns.

_____ 46. ___ reverse transcription can be used to estimate actual bacterial metabolism in the environment.

_____ 47. ___ isotopes are a way to differentiate biological from abiotic chemical activity.

_____ 48. Barophilic bacteria require high ___for growth.

_____ 49. Hydrothermal vents use ___ as their primary producers.

III. Briefly Define (2 points each)

50. *Chlamydia*

51. Intoxication food poisoning

52. *Cryptosporidium*

53. Luminescent reporter gene

54. DNA vaccine

55. FAME

56. AODC

Discussion

57. Why are restriction nucleases are used in recombinant DNA work and what do they do? **(6 points)**

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I. Fill in the Blank (2 points each)

_____ 1. Tuberculosis and ___ are 2 important human diseases caused by *Mycobacterium*.

_____ 2. The MMR vaccine protects against Red Measles, Mumps, and ____.

_____ 3. The Varicella virus causes the disease ___.

_____ 4. When an influenza virus is identified as H1N5, the H stands for ___.

_____ 5. The most common bacterial STP in college students is ____.

_____ 6. Detecting the presence of reverse transcriptase in a patient is used to diagnosis ____.

_____ 7. Genital herpes is caused by the virus ___ (full name).

_____ 8. Gonorrhea is caused by the bacterium ___ *gonoerhoeae.*

_____ 9. A chancre is the first symptom of the STP called ___.

_____ 10. ___ are diseases spread from animal to humans.

_____ 11. ___ virus is the causal agent of four corner disease.

_____ 12. The disease caused by most heat tolerant bacterium passed in milk is ___.

_____ 13. Deer ticks are often involved in spreading the disease, ___.

_____ 14. ___ plague is the most infective form of the plague.

_____ 15. Coliforms have the taxonomically useful trait of being able to use the sugar, ___.

_____ 16. Legionnaires disease is usually treated with the antibiotic, ___.

_____ 17. ___ is the most life threatening disease caused by a member of the genus *Salmonella.*

_____ 18. Amoebic dysentery is caused by ___ *histolytica*.

_____ 19. *Clostridium* ___ is a type of food poisoning often associated with eating gravy that has been stored without refrigeration.

_____ 20. ___ is the most common cause of intoxication type food poisoning in the USA.

_____ 21. ___ are used in sewage treatment plants for the anaerobic breakdown of the solid materials.

_____ 22. Trickling filters and ___ are the 2 most common techniques for the secondary treatment of municipal sewage.

_____ 23. ___ is a fermentation product only produced during the stationary phase of microbial growth.

_____ 24. The aerobic breakdown of wine will produce ___.

_____ 25___ is added to wort to help insure successful fermentation and to give beer its distinctive bitter taste.

_____ 26. When grapes are pressed, they release the must and the solid material called ___.

_____ 27. ___ cloning involves cloning total fragmented DNA and then screening the multitude of clones produced.

_____ 28. ___ uses small bits of lambda virus to permit packaging of large pieces of foreign DNA inside a lambda viron.

_____ 29. ___ vectors have a controllable promoter that can be manipulated to turn the recombinant gene on or off.

_____ 30. *E. coli* continues to be the most widely used cloning vehicle even though it complicate produce purification because it produces___.

_____ 31. The ___ plasmid is able to "naturally" genetically engineer plants.

_____ 32. The toxin gene from *Bacillus* ___ is frequently inserted into plant genomes to give them insect resistant.

_____ 33. DNA chips are also called ___.

_____ 34. Site directed mutagenesis is used to produce ___ mutations.

_____ 35 ___ is the molecule most commonly used by molecular biologists as evolutionary chronometers.

_____ 36. The FISH assay stands for fluorescent ___ hybridization.

_____ 37. The ___ ratio is particularly useful for bacterial taxonomy because it is not particularly susceptible to mutations.

_____ 38. ___ *Manual of Systematic Bacteriology*

is the definitive reference book for bacterial systematic.

II. Short Answer (2 points)

39. MPN

40. *E. coli* O157-H7

41. Biodics

42. BOD

43. Sparger

44. immobilized enzymes

45. insertion inactivation

III. Discussion

46. Describe the process by which Wilmington treats the drinking water we consume. **(4 points)**

47. Describe in detail how you would produce human insulin using recombinant DNA technology. **(6 points)**