39. What do gas gangrene, tetanus, and botulism all have in common?

A. The symptoms of all three are caused by a neurotoxin exotoxin
B. All three are caused by gram positive cocci
C. All three are caused by a species of the genus *Clostridium*
D. All three diseases are the result of enterotoxin production
E. The symptoms of all three are produced by endotoxins in the blood

40. At a family reunion attended by 45 family members, about 4 hours after they had eaten a meal at which the main dish was a hamburger and rice casserole, 35 of the family of all ages began to suffer symptoms of nausea, vomiting, and diarrhea. None of the affected family members had a fever and the symptoms passed in 24 hours. All of the affected individuals had eaten the casserole, and when it was tested large numbers of gram positive bacilli with endospores were found in it. What is the most likely diagnosis?

A. Ingestion anthrax
B. *Bacillus cereus* food intoxication
C. Botulism
D. Staphylococcal food intoxication
E. *E. coli* O157 infection

41. Dental plaque is a biofilm.
A. Ture
B. False

42. Biofilms can form on the following surface(s):
a. Intracellular surface
b. Extracelluar surface
c. Solid surface
d. B and C
e. A, B and C

43. Which of the following describes best the composition of biofilm:
a. 90% bacterial cells, 5% water/nutrient channels, and 5% extracellular polysaccharides (EPS)
b. 80% bacterial cells, 5% water/nutrient channels, and 15% EPS
c. 15% bacterial cells, 5% water/nutrient channels, and 80% EPS
d. 15% bacterial cells, 80% water/nutrient channels, and 5% EPS
e. 5% bacterial cells, 80% water/nutrient channels, and 15% EPS

44. When microorganisms in a community reach a certain density, specific signal(s) will be triggered leading to expression of different set(s) of genes. This phenomenon is termed:
a. Quorum sensing
b. Colonization resistance
c. Replacement
d. Homeostasis

45. Bacteria in biofilms are:
   a. More resistant to antibiotics and host defense than platonic bacteria
   b. More resistant to antibiotics but are just as susceptible to host immune defense as platonic bacteria
   c. Less resistant to antibiotics and more resistant to host immune defense
   d. As susceptible to antibiotics and host defense as platonic bacteria
   e. Less resistant to antibiotics and host immune defense

46. Development of periodontal disease requires the following elements:
   a. Susceptible host
   b. Periodontal pathogens
   c. Absence of beneficial species
   d. B and C
   e. A, B and C

47. Dental plaque formed above the gum line is called the supragingival plaque; that formed below the gum line is called the subgingival plaque. Therefore, the supragingival plaque is only responsible for causing caries, whereas the subgingival plaque is responsible for causing gingivitis and periodontitis.
   a. True
   b. False

48. The mature subgingival plaque is dominated by:
   a. Gram-negative cocci
   b. Gram-positive cocci
   c. Gram-negative rods
   d. Gram-positive rods

49. The criteria to identify a microorganism as a periodontal pathogen is:
   a. The microorganism is absent or exists in small numbers in periodontal healthy site, but is found in high numbers in diseased site.
   b. Patients develop high titers of antibody responses to the microorganism.
   c. The microorganism can cause similar disease in an animal model.
   d. The microorganism produces virulence factors in vitro.
   e. All of the above.

50. Which of the following species will turn black when grown on blood agar plates?
   a. *Porphyromonas gingivalis*
   b. *Prevotella intermedia*
   c. *Treponema denticola*
   d. A and B
   e. A and C

51. Resident microflora contribute to colonization resistance by:
    a. Competing for nutrients and adhesion sites
    b. Creating micro-environment to prevent the growth of exogenous species
    c. Producing inhibitory factors
    d. A and C
    (e.) A, B and C

52. Saliva provides nutrients for microorganisms but lacks host defense, whereas gingival crevicular fluid provides both nutrients and host defense.
    a. True
    (b) False

53. Factor(s) responsible for breakdown of microbial homeostasis include:
    a. Host immune deficiency
    b. Carbohydrate-rich diet
    c. Antibiotics
    d. A and C
    (e.) A, B and C

II. Matching Questions. Choose the choice from the right-hand column with the closest relationship with the term or phrase in the left-hand column. You may use an answer more than once or not at all.

54-57 Causative Agent of Bacterial Disease

B 54.	Osteomyelitis	A.	Group B streptococci
C 55.	VRE septicemia	B.	*Staph. aureus*
D 56.	Rheumatic fever	C.	Group D streptococci
A 57.	Neonatal meningitis	D.	Group A streptococci
		E.	*Corynebacterium diphtheriae*

58-61 Bacterial Toxins

B 58.	Protein synthesis inhibiting toxin	A.	*Staph aureus*
C 59.	Blocks release of acetyl choline	B.	*Cory. diphtheriae*
A 60.	Toxic shock syndrome	C.	*Clos. botulinum*
E 61.	Cell wall lipopolysacchride	D.	*Clos. tetani*
		E.	Endotoxic shock

62-64 Causative Agent Genera

D 62.	Gas gangrene	A.	*Neisseria*
C 63.	Cellulitis	B.	*Corynebacterium*
C 64.	Acute Bacterial Endocarditis	C.	*Streptococcus*
		D.	*Clostridium*
		E.	*Bacillus*

65-71. Oral Organisms

A. *Streptococcus oralis*
B. *Treponema denticola*
C. *Streptococcus mutans*
D. *Fusobacterium nucleatum*
E. *Actinobacillus actinomycemtemcomitans*

B 65. Which is a "red complex" organism?

D 66. Which one belongs to the "orange complex"?

E 67. Which one has been recognized as a strong etiologic agent of localized juvenile periodontitis?

D 68. Which one coaggregates with all the other species and plays an important role in plaque formation?

C 69. Which one causes caries?

B 70. Which one is motile?

A 71. Which one is a pioneering species in dental plaque formation?

72-73. Specimen to Collect to Isolate Organism

D 72. Pneumonia
B 73. Acute Endocarditis

A. Nasal swab
B. Blood
C. Cerebrospinal Fluid
D. Sputum
E. Urine

74-75. Causative Organism

E 74. Typhoid fever
D 75. Pneumonic plague

A. *Hemophilus influenzae*
B. *Shigella sonnei*
C. *Bordetella pertussis*
D. *Yersinia pestis*
E. *Salmonella typhi*