Disease Detectives B/C
Science Olympiad North Regional Tournament at the University of Florida

Rank: _____
Points: ____

Name(s):__________________________________________________________

Team Name: ______________________________________________________

School Name: _____________________________________________________

Team Number: ________
1. What kind of infection is MRSA?
   a. Viral
   b. Bacterial
   c. Parasitic
   d. Fungal
2. Why is MRSA a major health threat in our society?
   a. This disease is resistant to many antibiotics.
   b. MRSA is known for killing large corn fields relatively quickly.
   c. Easily spread in hospitals and other healthcare facilities.
   d. 2 of the above.
3. Influenza and pneumonia considered one of the top 10 leading causes of death in the US.
   a. True
   b. False
4. What do MRSA and some strains of TB have in common?
   a. Both are common to infect the upper Pharynx.
   b. Both most commonly affect infants and newborns.
   c. Both are resistant to modern antibiotics.
   d. None of the above.
5. What antibiotic is MRSA famous for being resistant to?
   a. Penicillin
   b. Methicillin
   c. Amoxicillin
   d. Fluoroquinolones
6. What is a pandemic?
   a. Denoting a disease affecting or attacking the population of an extensive region, country, continent, global.
   b. Widespread occurrence of an infectious disease in a community at a particular time.
   c. Disease or condition regularly found among particular people or in a certain area.
   d. A genetic abnormality that makes a sudden appearance over large area: continent, country, globe.
7. In 2017 what disease was/is considered a major pandemic?
   a. Spanish flu
   b. AIDS
   c. E-BOLA
   d. Salmonella
   e. 2 of the above
8. What would be a proper example of an endemic?
a. In 2005 one in seven people contracted the flu in the united states alone.
b. A small village in the congo had an E-bola outbreak killing 70% of the villages population.
c. There has recently been an increase of the black plague in china, From 1 in every 50,000,000 to one in every 20,000,000
d. In 1918 and 1919 the spanish flu had around 50,000,000 victims worldwide.

9. Why can't viruses be affected by Antibiotics.
   a. There is no bonding sites on the Virus for the antibiotic to attach and neutralize.
   b. Viruses are too small compared to the large size of an antibiotic molecule.
   c. Viruses have no Genetic material for the antibiotic to disrupt.
   d. Because viruses are too simple and non-living so antibiotics can not effect them.

10. What pathogen(s) resembles this structure?
   a. vibrio cholerae
   b. Ebola
   c. Marburg virus
   d. E-coli
   e. 2 of the above

11. Which of the following can be found in viruses?
   I. Protein coat
II. DNA

III. Chloroplasts

a. II and III
b. I and II
c. I, II, and III
d. III only

12. The CDC recommends if outdoor temperature is above 90°F, refrigerate food within how many hours?
   a. Within ½ hour
   b. Within 1 hour
   c. Within 2 hours
   d. Within 5 hours
   e. Doesn't really matter

13. What are the first three steps of outbreak investigation in order?
   a. Establish existence of outbreak, verify diagnosis, construct case definition.
   b. Establish existence of outbreak, construct case definition, verify diagnosis.
   c. Establish existence of outbreak, identify investigation team and resources, verify diagnosis.
   d. Identify investigation team and resources, establish existence of outbreak, verify diagnosis.

14. What are four different basic studies?
   a. Ecological, case control, cohort, randomized controlled trial.
   b. Cohort, specialized doctoral, randomized controlled trial, biological.
   c. Ecological, case control, biological, randomized controlled trial
   d. All of the above

15. Malaria is a parasitic disease.
   a. True
   b. False

16. Patient Zero is the vector that infected the first carrier of a communicable disease in an outbreak.
   a. True
   b. False
Matching 17-27

17. Salmonella
18. Peripheral neuropathy
19. COPD
20. Hypersensitivity pneumonitis
21. Type 1 diabetes
22. Hashimoto’s thyroiditis
23. Hypertriglyceridemia
24. Campylobacter
25. Amyotrophic lateral sclerosis (ALS)
26. Peripheral artery disease
27. Multiple sclerosis

A. Respiratory disease
B. Foodborne illness
C. Neurological disease
D. Cardiovascular disease
E. Autoimmune disease

28. What event, at the first line/blacked out section, explains the change in population?
   a. War
   b. Spanish Flu
   c. Phenomena from cold temperatures
   d. Bubonic Plague

29. Which of the following is an epidemiologic triad?
   a. Moldy shower - Old man - open cut
b. Drainage canal - Ameba - young child  
c. E-coli - young child - pre-existing condition

30. Which of the following diseases would not be considered to spread easily?  
a. Tuberculosis  
b. Salmonella  
c. Campylobacter  
d. Multiple sclerosis

31. If disease X kills 16 people in a town of 14,400 people what is the mortality rate in that town?  
a. 1/1400  
b. 1/950  
c. 1/900  
d. 1/800

32. Aspergillosis is a fungal disease.  
a. True  
b. False

33. Majority of bacteria has negative effects on the human body  
a. True  
b. False

34. What is the primary vector of the black plague?  
a. Pigs  
b. Dogs  
c. Rats  
d. Flees  
e. Roaches

35. Mad cow disease is caused by a;  
a. Virous  
b. Cow  
c. Bacteria  
d. Fungus  
e. Prion

36. How did mad cow disease emerge?  
a. Adding beef into Cattle livestock  
b. It has alway existed  
c. Government experiment  
d. Fermenting cow feces

37. How did farmers control the spread of mad cow disease?  
a. Treat infected cows and humans with antibiotics.
b. Burn all cattle on a ranch that had any infected cows.
   c. Execute all infected cattle.
   d. They didn't take action. Mad cow disease faded off on its own and never emerged again.
   e. Vaccines

38. What disease is famous for being eradicated of the planet due to vaccines.
   a. Chicken pox
   b. Flu strain H1N1
   c. Smallpox
   d. Black plague
   e. Mad Cow

39. Edward Jenner invented the first vaccine.
   a. True
   b. False

40. Prions are classified as;
   a. Viruses
   b. Family of bacteria
   c. DNA strands
   d. Protines

41. A prolonged exposure to radiation most likely result in what kind of symptoms?
   a. Chronic symptoms
   b. Acute symptoms
   c. Irreversible and incurable symptoms
   d. None of the above

42. How long should one boil water during a boil water advisory?
   a. 15 seconds
   b. 30 seconds
   c. 1 minute
   d. 2 minutes

43. Why would a City, County, or State announced a boil water report?

44. What are 3 different symptoms that are caused by the majority of foodborne illness?

45. Definition of parasitic disease with 2 examples.
46. Definition of pathogen incubation period.
   1. time from the moment of exposure to an infectious agent until signs and symptoms

47. What is the vector for lyme disease?
   1. Tics

48. What cells in the body does hiv affect?
   1. CD4, T-cells, T-lymphocytes, or helper cells.

49. 2 ways to prevent beef from getting contaminated with e-coli.
   i. Two of
      1. Wash utensils. Use hot soapy water on knives, countertops and cutting boards before and after they come into contact with fresh produce or raw meat.
      2. Keep raw foods separate. This includes using separate cutting boards for raw meat and foods, such as vegetables and fruits.
      3. Wash your hands.
      4. Proper buturing of cow.