

Wolaita Sodo University, College of Agriculture, Department of Plant Science. Plant Pathology (PLSC-2052) Sample Self-Test General Questions, Answers and Explanations. Academic Year 2024 G.C. / 2017 E.C. Instructor: Alemu Nega (PhD, Asst. Prof. in Plant Pathology), Email: alemunega531@gmail.com

1. Which of the following best defines "disease" in the context of plants?
 - a) Any deviation from the normal growth and development of a plant.
 - b) The presence of visible symptoms like wilting or discoloration.
 - c) An imbalance in nutrient levels within plant tissues.
 - d) A sudden decrease in crop yields due to environmental factors.
2. Plant pathology is the study of:
 - a) The classification and taxonomy of plant species.
 - b) The interactions between plants and their environment.
 - c) The diagnosis, etiology, and management of plant diseases.
 - d) The genetic improvement of crop plants for disease resistance.
3. Which of the following highlights the significance of plant diseases?
 - a) They can lead to significant economic losses in agriculture.
 - b) They can impact food security and availability.
 - c) They can affect the aesthetic value of ornamental plants.
 - d) All of the above.
4. Which of the following is NOT a biotic factor that can cause plant disease?
 - a) Fungi
 - b) Bacteria
 - c) Nutrient deficiency
 - d) Viruses
5. What role does plant pathology play in ensuring global food security?
 - a) By developing disease-resistant crop varieties.
 - b) By implementing effective disease management strategies.
 - c) By monitoring and predicting disease outbreaks.
 - d) All of the above.
6. How can understanding the economic impact of plant diseases inform decision-making in agriculture?
 - a) It helps to justify investments in disease control measures.
 - b) It guides the prioritization of research efforts.
 - c) It informs policies related to plant health and quarantine.
 - d) All of the above.
7. Which of the following is an example of how plant diseases can have indirect impacts on human society?
 - a) Reduced food availability leading to malnutrition.
 - b) Loss of income for farmers and agricultural communities.
 - c) Increased reliance on pesticides with potential environmental consequences.
 - d) All of the above.
8. Why is it important to be able to accurately define "disease" in plants?
 - a) To distinguish between biotic and abiotic causes of plant health problems.
 - b) To ensure appropriate diagnosis and treatment strategies are applied.
 - c) To facilitate effective communication among plant pathologists and other stakeholders.

- d) All of the above.
- 9. Which of the following is a distinguishing feature of infectious plant diseases?
 - a) They are caused by living organisms.
 - b) They are always fatal to the host plant.
 - c) They are not affected by environmental conditions.
 - d) They cannot be spread from plant to plant.
- 10. Which group of plant pathogens is responsible for diseases such as rusts, smuts, and powdery mildews?
 - a) Fungi
 - b) Bacteria
 - c) Viruses
 - d) Nematodes
- 11. Which of these plant diseases is caused by a bacterial pathogen?
 - a) Tobacco mosaic virus
 - b) Fire blight of pear
 - c) Blackleg of potato
 - d) Both b and c
- 12. Which of the following pathogens are obligate parasites, meaning they require a living host to survive and reproduce?
 - a) Fungi
 - b) Viruses
 - c) Bacteria
 - d) Nematodes
- 13. Which of the following is a characteristic symptom of plant diseases caused by nematodes?
 - a) Leaf spots and blights
 - b) Root knots and galls
 - c) Wilting and yellowing
 - d) Fruit rots and molds
- 14. Which of these is NOT a category of non-infectious plant diseases?
 - a) Nutritional disorders
 - b) Unfavorable meteorological factors
 - c) Improper cultural practices
 - d) Transmission by insect vectors
- 15. Which environmental factor, when not in its ideal range, is a common cause of non-infectious plant diseases?
 - a) Temperature
 - b) Moisture
 - c) Light
 - d) All of the above
- 16. A plant exhibiting yellowing between its leaf veins is likely suffering from a deficiency of which nutrient?
 - a) Nitrogen
 - b) Phosphorus
 - c) Potassium
 - d) Magnesium
- 17. How can improper cultural practices contribute to plant disease development?

- a) By creating wounds that serve as entry points for pathogens.
 - b) By stressing plants and making them more susceptible to infection.
 - c) By providing favorable conditions for pathogen growth and reproduction.
 - d) All of the above.
18. Why is it important to distinguish between infectious and non-infectious plant diseases?
- a) To determine the appropriate control strategies.
 - b) To prevent the spread of contagious pathogens.
 - c) To address underlying environmental or cultural problems.
 - d) All of the above.
19. Which characteristic distinguishes viroids from viruses?
- a) Viroids are much larger than viruses.
 - b) Viroids consist only of RNA, while viruses have both RNA and a protein coat.
 - c) Viroids infect only animals, while viruses infect plants.
 - d) Viroids can be controlled with antibiotics, while viruses cannot.
20. Mycoplasma-like organisms are unique plant pathogens because they lack:
- a) DNA
 - b) RNA
 - c) A cell wall
 - d) Chloroplasts
21. Dodder is an example of a:
- a) Parasitic fungus
 - b) Parasitic higher plant
 - c) Viral pathogen
 - d) Bacterial pathogen
22. Which of the following is an example of an unfavorable meteorological factor that can cause plant disease?
- a) Hailstorms
 - b) Drought
 - c) Frost
 - d) All of the above
23. How can atmospheric impurities like sulfur dioxide damage plants?
- a) By interfering with photosynthesis
 - b) By damaging leaf tissues directly
 - c) By altering soil pH
 - d) Both a and b
24. Which of the following is a cultural practice that can help to prevent plant diseases?
- a) Crop rotation
 - b) Using disease-free planting material
 - c) Proper sanitation of tools and equipment
 - d) All of the above
25. Why is it important to understand the taxonomy and reproduction methods of plant pathogens?
- a) To predict how a disease might spread.
 - b) To identify potential weaknesses in a pathogen's life cycle that could be exploited for control.
 - c) To develop effective disease management strategies.

- d) All of the above.
26. A plant disease is causing significant losses in a farmer's tomato field. What is the most likely order of steps a plant pathologist would take to address the problem?
- a) Identify the pathogen, determine control strategies, diagnose the disease
 - b) Diagnose the disease, identify the pathogen, and determine control strategies
 - c) Determine control strategies, diagnose the disease, identify the pathogen
 - d) The order doesn't matter as long as all steps are taken.
27. What is the primary purpose of Koch's postulates?
- a) To classify plant diseases based on their symptoms.
 - b) To establish a causal relationship between a pathogen and a disease.
 - c) To develop new methods for controlling plant diseases.
 - d) To study the evolution of plant pathogens.
28. Which of the following is NOT one of Koch's postulates?
- a) The pathogen must be present in all cases of the disease.
 - b) The pathogen must be isolated from the diseased host and grown in pure culture.
 - c) The pathogen must be observed causing the same disease in a healthy host when inoculated.
 - d) The pathogen must be treatable with a specific fungicide or bactericide.
29. Which of the following is an example of a necrotic symptom in plants?
- a) Leaf spot
 - b) Gall formation
 - c) Stunting
 - d) Excessive branching
30. How does hypoplasia differ from hyperplasia in terms of plant disease symptoms?
- a) Hypoplasia involves increased cell size, while hyperplasia involves decreased cell size.
 - b) Hypoplasia involves decreased cell size or number, while hyperplasia involves increased cell division.
 - c) Hypoplasia is caused by biotic factors, while hyperplasia is caused by abiotic factors.
 - d) Hypoplasia is a reversible symptom, while hyperplasia is irreversible.
31. Which of the following is an example of a physiological effect that plant pathogens can have on their hosts?
- a) Disruption of photosynthesis
 - b) Interference with water and nutrient uptake
 - c) Production of toxins that damage plant tissues
 - d) All of the above
32. Why is accurate diagnosis of plant diseases important?
- a) To ensure the correct control measures are implemented.
 - b) To prevent unnecessary use of pesticides.
 - c) To track the spread and impact of plant diseases.
 - d) All of the above.
33. Which of the following tools or techniques can be used in the diagnosis of plant diseases?
- a) Visual observation of symptoms
 - b) Microscopic examination of infected tissues
 - c) Molecular techniques for pathogen detection
 - d) All of the above
34. What makes fulfilling Koch's postulates challenging in some cases of plant disease?

- a) Some pathogens cannot be grown in pure culture.
 - b) Symptoms may be caused by a combination of factors.
 - c) Ethical considerations may prevent inoculation of certain host plants.
 - d) All of the above.
35. A plant pathologist isolates a fungus from a diseased plant. What would be the next step in fulfilling Koch's postulates?
- a) Treat the diseased plant with a fungicide to see if it recovers.
 - b) Inoculate a healthy plant of the same species with the isolated fungus.
 - c) Observe the fungus under a microscope to identify its characteristics.
 - d) Sequence the fungus's DNA to determine its genetic makeup.
36. Which of the following symptoms could be indicative of a systemic infection rather than a localized infection?
- a) A single, well-defined spot on a leaf.
 - b) Wilting of the entire plant.
 - c) Root rot confined to a small portion of the root system.
 - d) A canker on a single branch of a tree.
37. How can understanding the effects of plant pathogens on plant physiology help in disease management?
- a) It can lead to the development of disease-resistant crop varieties.
 - b) It can inform the timing and application methods for chemical treatments.
 - c) It can guide the manipulation of environmental conditions to make them less favorable for pathogen growth.
 - d) All of the above.
38. Why might it be difficult to apply Koch's postulates to a disease caused by a virus?
- a) Viruses cannot be grown in pure culture.
 - b) Viruses do not cause visible symptoms in plants.
 - c) Viruses are too small to be observed under a microscope.
 - d) Viruses do not reproduce in living organisms.
39. Which of the following is an example of how plant disease diagnosis can be used to protect agricultural trade?
- a) By preventing the introduction of exotic pathogens into new areas.
 - b) By ensuring that exported plant products meet phytosanitary standards.
 - c) By facilitating the development of international regulations for plant health.
 - d) All of the above.
40. A farmer observes the yellowing and stunting of plants in one section of their field. What is the most likely explanation for why only a specific area is affected?
- a) The affected plants are genetically different from the rest of the field.
 - b) The affected area has different soil conditions or environmental factors.
 - c) The affected plants were accidentally sprayed with a herbicide.
 - d) Any of the above could be possible explanations.
41. What is the key difference between parasitism and pathogenicity?
- a) Parasitism always benefits both organisms, while pathogenicity only benefits the pathogen.
 - b) Parasitism involves one organism living in or on another, while pathogenicity refers to the ability to cause disease.

- c) Parasitism only applies to relationships between plants and animals, while pathogenicity applies to all organisms.
 - d) There is no difference; the terms are interchangeable.
42. The host range of a pathogen refers to:
- a) The geographical area where the pathogen is found.
 - b) The range of temperatures in which the pathogen can survive.
 - c) The different types of plants a pathogen can infect.
 - d) The different stages in a pathogen's life cycle.
43. Which three factors are represented in the disease triangle?
- a) Host, pathogen, and environment
 - b) Temperature, humidity, and rainfall
 - c) Bacteria, fungi, and viruses
 - d) Inoculum, penetration, and infection
44. What is the role of inoculum in the plant disease cycle?
- a) It provides nutrients for the pathogen to grow.
 - b) It triggers the plant's defense mechanisms.
 - c) It is the part of the pathogen that initiates infection.
 - d) It is a chemical used to control plant diseases.
45. Which of the following is an example of a penetration process used by plant pathogens?
- a) Direct penetration through plant cell walls
 - b) Entry through natural openings like stomata
 - c) Infection through wounds created by insects or other mechanical damage
 - d) All of the above
46. What occurs during the infection and establishment phase of the plant disease cycle?
- a) The pathogen spreads to other plants.
 - b) The pathogen enters a dormant state to survive unfavorable conditions.
 - c) The pathogen begins to reproduce and colonize plant tissues.
 - d) The pathogen produces spores or other structures for dispersal.
47. How do plant pathogens typically disseminate or spread to new hosts?
- a) Through wind, water, or soil
 - b) By insect vectors
 - c) Through the movement of infected plant material
 - d) All of the above
48. Why is understanding the survival mechanisms of plant pathogens important for disease management?
- a) It helps predict when and where outbreaks are most likely to occur.
 - b) It informs the development of strategies to reduce pathogen populations.
 - c) It guides the timing of control measures to target vulnerable stages in the pathogen's life cycle.
 - d) All of the above.
49. Which of the following is an example of a pathogen with a narrow host range?
- a) A fungus that infects multiple species of fruit trees.
 - b) A bacterium that only infects a specific variety of wheat.
 - c) A virus that can be transmitted from plants to animals.
 - d) A nematode that attacks the roots of many different crops.
50. How can environmental factors influence disease development?

- a) High humidity can create favorable conditions for fungal growth.
 - b) Drought stress can weaken plants and make them more susceptible to infection.
 - c) Temperature extremes can inhibit pathogen growth or reduce plant defenses.
 - d) All of the above.
51. What is the significance of the disease pyramid in understanding plant disease?
- a) It emphasizes the importance of time as a factor in disease development.
 - b) It illustrates the hierarchical relationship between different types of pathogens.
 - c) It provides a visual representation of the economic impact of plant diseases.
 - d) It outlines the steps involved in developing disease-resistant crops.
52. A farmer plants a crop that is known to be susceptible to a particular fungal pathogen. What strategy could help to reduce the risk of disease?
- a) Planting a different crop that is not a host for the pathogen.
 - b) Ensuring adequate plant spacing to improve air circulation and reduce humidity.
 - c) Treating seeds with a fungicide before planting.
 - d) All of the above.
53. Which of the following is an example of a cultural practice that can help disrupt the plant disease cycle?
- a) Applying nitrogen fertilizer to promote plant growth.
 - b) Removing and destroying infected plant debris.
 - c) Irrigating crops with overhead sprinklers.
 - d) Using genetically modified crops that are resistant to herbicides.
54. Why is it important to consider the entire disease cycle when developing disease management strategies?
- a) Different control measures may be effective at different stages of the cycle.
 - b) Targeting multiple stages of the cycle can enhance disease control.
 - c) Understanding the pathogen's biology and ecology is crucial for effective management.
 - d) All of the above.
55. Which of the following is NOT a common mechanism used by pathogens to attack plants?
- a) Penetration of the plant cell wall using specialized enzymes
 - b) Release of toxins that interfere with plant cell function
 - c) Photosynthesis
 - d) Manipulation of the plant's hormonal balance
56. Pathogens that rely on living plant tissue for survival are classified as:
- a) Necrotrophs
 - b) Biotrophs
 - c) Saprophytes
 - d) Symbionts
57. Which of the following is an example of a pre-existing structural defense mechanism in plants?
- a) Formation of tyloses
 - b) Production of phytoalexins
 - c) Thick cuticle
 - d) Hypersensitive response
58. Trichomes, hair-like structures on plant surfaces, primarily function to:
- a) Attract pollinators
 - b) Deter herbivores and reduce pathogen access
 - c) Absorb water and nutrients

- d) Enhance photosynthesis
- 59. The rapid death of plant cells at the site of infection, effectively isolating the pathogen, is known as:
 - a) Systemic acquired resistance
 - b) Hypersensitive response
 - c) Phytoalexin accumulation
 - d) Callose deposition
- 60. Which of the following post-infectional defense structures provides a physical barrier against pathogens spread within plant tissues?
 - a) Tyloses
 - b) Cell wall thickening
 - c) Formation of cork layers
 - d) All of the above
- 61. Plants produce a variety of antimicrobial compounds as a pre-existing biochemical defense. Which of the following is NOT an example of such a compound?
 - a) Phytoalexins
 - b) Tannins
 - c) Glucosinolates
 - d) Saponins
- 62. The role of chitinases in plant defense is to:
 - a) Degrade fungal cell walls
 - b) Inhibit bacterial protein synthesis
 - c) Disrupt viral replication
 - d) Neutralize pathogen toxins
- 63. Salicylic acid plays a crucial role in:
 - a) Systemic acquired resistance
 - b) Hypersensitive response
 - c) Production of reactive oxygen species
 - d) All of the above
- 64. Jasmonic acid is a plant hormone involved in defense against:
 - a) Necrotrophic pathogens
 - b) Biotrophic pathogens
 - c) Herbivorous insects
 - d) Both a and c
- 65. Some pathogens secrete effector molecules into plant cells to suppress defense responses. This strategy is known as:
 - a) Hypersensitive response
 - b) Effector-triggered immunity
 - c) Systemic acquired resistance
 - d) Pathogen-associated molecular pattern-triggered immunity
- 66. Which of the following is a common entry point for pathogens attempting to infect a plant?
 - a) Intact cuticle
 - b) Stomata
 - c) Hydathodes
 - d) Both b and c

67. Plants can reinforce their cell walls with lignin, a complex polymer, to enhance their resistance to:
- a) Mechanical penetration by pathogens
 - b) Degradation by pathogen enzymes
 - c) Water loss
 - d) All of the above
68. Some plants produce specialized cells containing crystals of calcium oxalate, known as:
- a) Trichomes
 - b) Idioblasts
 - c) Guard cells
 - d) Sclereids
69. The production of reactive oxygen species during plant defense serves to:
- a) Directly damage pathogen cells
 - b) Strengthen plant cell walls
 - c) Signal the activation of other defense responses
 - d) All of the above
70. Plants can recognize specific molecules derived from pathogens, known as:
- a) Phytoalexins
 - b) Elicitors
 - c) Phytohormones
 - d) Allelochemicals
71. Systemic acquired resistance in plants is characterized by:
- a) A localized defense response at the site of infection
 - b) An enhanced defense response in tissues distant from the initial infection site
 - c) The production of antibodies against the pathogen
 - d) The formation of symbiotic relationships with beneficial microbes
72. Which of the following plant hormones plays a role in inducing systemic acquired resistance?
- a) Auxin
 - b) Gibberellin
 - c) Salicylic acid
 - d) Absciscic acid
73. The hypersensitive response is often accompanied by the production of:
- a) Phytoalexins
 - b) Reactive oxygen species
 - c) Pathogenesis-related proteins
 - d) All of the above
74. Plants have evolved sophisticated defense mechanisms to combat pathogens. These mechanisms can be broadly categorized as:
- a) Structural and biochemical
 - b) Passive and active
 - c) Constitutive and induced
 - d) All of the above
75. Which of the following contributes to the variability of plant pathogens?
- a) Mutation
 - b) Sexual reproduction
 - c) Gene flow

- d) All of the above
- 76. Pathogens can evolve rapidly to overcome plant resistance. Which of the following mechanisms allows for rapid adaptation in pathogens?
 - a) Short generation time
 - b) High reproductive rate
 - c) Ability to exchange genetic material
 - d) All of the above
- 77. Virulence, in the context of plant pathology, refers to:
 - a) The ability of a pathogen to cause disease
 - b) The severity of disease symptoms caused by a pathogen
 - c) The ability of a plant to resist infection
 - d) Both a and b
- 78. Plant resistance genes often encode proteins that:
 - a) Directly target and destroy pathogens
 - b) Recognize specific pathogen molecules and trigger defense responses
 - c) Enhance the plant's physical barriers
 - d) All of the above
- 79. The gene-for-gene concept describes the interaction between:
 - a) Plant resistance genes and pathogen virulence genes
 - b) Plant hormones and pathogen toxins
 - c) Plant defense enzymes and pathogen effector molecules
 - d) None of the above
- 80. According to the gene-for-gene concept, a plant will be resistant to a pathogen if:
 - a) The plant lacks a resistance gene that matches the pathogen's virulence gene
 - b) The plant possesses a resistance gene that matches the pathogen's virulence gene
 - c) The pathogen lacks a virulence gene that matches the plant's resistance gene
 - d) Both b and c
- 81. Which of the following is NOT a type of plant resistance to pathogens?
 - a) Vertical resistance
 - b) Horizontal resistance
 - c) Systemic acquired resistance
 - d) Induced resistance
- 82. Vertical resistance is characterized by:
 - a) Effectiveness against a broad range of pathogens
 - b) Effectiveness against a specific race or strain of a pathogen
 - c) Durability and long-lasting effectiveness
 - d) Dependence on environmental conditions
- 83. Horizontal resistance is characterized by:
 - a) Effectiveness against a narrow range of pathogens
 - b) Partial resistance that slows down pathogen growth and reproduction
 - c) A high degree of specificity to pathogen genotypes
 - d) All of the above
- 84. Which of the following factors can contribute to the breakdown of plant disease resistance?
 - a) Emergence of new pathogen races or strains
 - b) High pathogen pressure and favorable environmental conditions
 - c) Reliance on a single resistance gene in plant breeding programs

- d) All of the above
85. Strategies to enhance the durability of plant disease resistance include:
- a) Deploying multiple resistance genes in a single plant variety
 - b) Rotating crops to disrupt pathogen life cycles
 - c) Implementing integrated pest management practices
 - d) All of the above
86. Which of the following processes can introduce new genetic variation into a pathogen population?
- a) Mutation
 - b) Gene flow from other pathogen populations
 - c) Hybridization between different pathogen species
 - d) All of the above
87. Pathogens can exhibit different levels of host specificity. What does it mean for a pathogen to have a narrow host range?
- a) It can infect a wide variety of plant species.
 - b) It can only infect a limited number of plant species or even specific varieties.
 - c) It can easily adapt to new hosts.
 - d) It is less likely to cause significant disease outbreaks.
88. Avirulence genes in a pathogen:
- a) Code for effector molecules that suppress plant defenses
 - b) Are recognized by matching resistance genes in the plant
 - c) Determine the pathogen's ability to cause disease on a susceptible host
 - d) All of the above
89. Quantitative resistance in plants is often characterized by:
- a) Complete immunity to specific pathogen races
 - b) Partial resistance that reduces disease severity
 - c) Dependence on a single resistance gene
 - d) Simple inheritance patterns
90. The gene-for-gene model predicts that:
- a) Plants with a matching resistance gene will be susceptible to pathogens with the corresponding avirulence gene.
 - b) Plants without a matching resistance gene will be resistant to pathogens with the corresponding avirulence gene.
 - c) Plants with a matching resistance gene will be resistant to pathogens with the corresponding avirulence gene.
 - d) The interaction between plant and pathogen genes has no effect on disease outcome.
91. What is the significance of the gene-for-gene concept in plant breeding?
- a) It highlights the importance of genetic diversity in both plants and pathogens.
 - b) It provides a framework for understanding and manipulating plant resistance genes.
 - c) It informs strategies for developing durable disease-resistant crop varieties.
 - d) All of the above
92. Which type of resistance is generally more durable and less likely to be overcome by pathogen evolution?
- a) Vertical resistance
 - b) Horizontal resistance
 - c) Both types are equally durable

- d) Durability depends on the specific genes involved
93. Field resistance is a type of:
- a) Vertical resistance
 - b) Horizontal resistance
 - c) Induced resistance
 - d) Systemic acquired resistance
94. What is a disease triangle in the context of plant pathology?
- a) A graphical representation of the three factors required for disease development: a susceptible host, a virulent pathogen, and a favorable environment.
 - b) A type of plant disease caused by a combination of three different pathogens.
 - c) A breeding strategy involving the crossing of three parent plants to achieve disease resistance.
 - d) A laboratory technique used to isolate and identify plant pathogens.
95. Integrated disease management strategies aim to:
- a) Rely solely on genetic resistance for disease control
 - b) Combine multiple disease control methods to minimize reliance on any single approach
 - c) Eradicate plant pathogens from agricultural ecosystems
 - d) Enhance the susceptibility of crops to beneficial microbes
96. Which of the following is NOT a major factor affecting plant disease epidemics?
- a) Host factors
 - b) Pathogen factors
 - c) Environmental factors
 - d) Lunar cycles
96. Epiphytotics are characterized by:
- a) sudden and widespread outbreak of plant disease.
 - b) A slow and localized spread of plant disease.
 - c) The complete absence of disease in a plant population.
 - d) The development of disease resistance in a plant population.
97. Which of the following host factors can influence disease development?
- a) Plant age
 - b) Genetic resistance
 - c) Nutritional status
 - d) All of the above
98. Pathogen virulence refers to:
- a) The ability of a pathogen to survive outside of its host.
 - b) The ability of a pathogen to spread from one plant to another.
 - c) The degree of damage a pathogen can cause to its host.
 - d) The ability of a pathogen to overcome host resistance.
99. Which of the following is a mechanism by which pathogens can disperse?
- a) Wind
 - b) Water
 - c) Insects
 - d) All of the above
100. How does high humidity often influence plant disease development?

- a) It increases the rate of photosynthesis in plants, making them more susceptible to disease.
 - b) It creates favorable conditions for pathogen growth and reproduction.
 - c) It strengthens plant cell walls, making them more resistant to infection.
 - d) It attracts beneficial insects that prey on plant pathogens.
101. Which of the following environmental factors can affect the effectiveness of fungicides?
- a) Temperature
 - b) Rainfall
 - c) Sunlight
 - d) All of the above
102. Which human activity can contribute to the spread of plant diseases?
- a) Planting infected seeds or seedlings
 - b) Improper irrigation practices
 - c) Movement of contaminated equipment
 - d) All of the above
103. Disease incidence refers to:
- a) The number of diseased plants in a given area.
 - b) The proportion of plants in a population that are diseased.
 - c) The severity of disease symptoms on individual plants.
 - d) The rate at which a disease spreads through a plant population.
104. Disease severity is often assessed using:
- a) Visual rating scales
 - b) Molecular techniques
 - c) Remote sensing
 - d) Both a and c
105. Which type of disease typically exhibits a slower, more gradual increase in disease over time?
- a) Simple interest disease
 - b) Compound interest disease
 - c) Both a and b
 - d) Neither a nor b
106. What is the primary goal of plant disease forecasting?
- a) To predict the future occurrence and severity of plant diseases.
 - b) To identify the causal agent of a plant disease.
 - c) To develop new disease-resistant plant varieties.
 - d) To assess the economic impact of plant diseases.
107. Which of the following can be used as a basis for plant disease forecasting?
- a) Weather data
 - b) Disease history
 - c) Host susceptibility
 - d) All of the above
108. The disease triangle illustrates the interaction of which factors?
- a) Host, pathogen, weather
 - b) Host, pathogen, environment
 - c) Pathogen, environment, time
 - d) Host, environment, human intervention
109. A high density of susceptible plants in an area is likely to:

- a) Increase the rate of disease spread.
 - b) Decrease the rate of disease spread.
 - c) Have no effect on disease spread.
 - d) Enhance plant immunity.
110. The latent period of a disease refers to:
- a) The time between infection and symptom development.
 - b) The time between symptom development and plant death.
 - c) The time it takes for a pathogen to produce spores.
 - d) The time a pathogen can survive in the soil.
111. Wounds on plants can:
- a) Provide entry points for pathogens.
 - b) Trigger systemic acquired resistance in plants.
 - c) Enhance nutrient uptake by plants.
 - d) Have no effect on plant disease susceptibility.
112. Monoculture, or planting the same crop repeatedly, can:
- a) Increase the risk of disease outbreaks.
 - b) Improve soil health and reduce disease incidence.
 - c) Have no effect on plant disease development.
 - d) Promote biodiversity and reduce pest pressure.
113. Which of the following is NOT a regulatory method for managing plant diseases?
- a) Quarantine
 - b) Sanitation
 - c) Crop rotation
 - d) Exclusion
114. What is the purpose of plant quarantine?
- a) To prevent the introduction of new pathogens into an area.
 - b) To eliminate existing pathogens from an area.
 - c) To reduce the spread of pathogens within an area.
 - d) To develop resistant plant varieties.
115. How can cultural practices help to manage plant diseases?
- a) By creating unfavorable conditions for pathogen growth and development.
 - b) By improving plant health and vigor.
 - c) By reducing the amount of pathogen inoculum present.
 - d) All of the above.
116. What is an example of a mechanical method for controlling plant diseases?
- a) Using fungicides
 - b) Planting resistant varieties
 - c) Removing and destroying infected plant material
 - d) Releasing beneficial insects
117. What is the principle behind host plant resistance as a disease management strategy?
- a) To kill pathogens directly.
 - b) To prevent pathogens from infecting plants.
 - c) To reduce the severity of disease symptoms.
 - d) To enhance the plant's immune system.
118. What is biological control of plant diseases?
- a) The use of synthetic pesticides to manage pathogens.

- b) The use of living organisms to suppress pathogen populations.
 - c) The use of genetic engineering to develop resistant plant varieties.
 - d) The use of cultural practices to create unfavorable conditions for pathogens.
119. What are the potential benefits of using integrated disease management?
- a) To reduce reliance on any single control method.
 - b) To minimize the risk of pesticide resistance.
 - c) To promote environmentally sound disease management practices.
 - d) All of the above.
120. How can biotechnology be applied in plant pathology?
- a) To develop disease-resistant crops.
 - b) To diagnose plant diseases more accurately and rapidly.
 - c) To study the molecular basis of plant-pathogen interactions.
 - d) All of the above.
121. Which of the following is a tissue culture technique relevant to plant pathology?
- a) Micropropagation for producing disease-free planting material.
 - b) Anther culture for developing homozygous resistant lines.
 - c) Callus culture for screening for disease resistance.
 - d) All of the above.
122. What are the future prospects of biotechnology in plant pathology?
- a) Development of novel disease control strategies.
 - b) Creation of durable and broad-spectrum disease resistance in crops.
 - c) Enhanced understanding of pathogen evolution and adaptation.
 - d) All of the above.
123. Which of these is a key application of biotechnology in plant pathology?
- a) Developing disease-resistant crop varieties.
 - b) Enhancing the nutritional value of crops.
 - c) Increasing the shelf life of fruits and vegetables.
 - d) All of the above.
124. How does tissue culture contribute to plant pathology research and applications?
- a) It allows for the rapid propagation of plants, even infected ones.
 - b) It enables the creation of pathogen-free plant material.
 - c) It facilitates the study of plant-pathogen interactions in a controlled environment.
 - d) All of the above.
125. Which tissue culture technique is particularly useful for producing large numbers of identical plants, free from diseases?
- a) Anther culture
 - b) Callus culture
 - c) Micropropagation
 - d) Somatic embryogenesis
126. How can biotechnology be used to diagnose plant diseases?
- a) By detecting the presence of specific pathogen DNA or RNA in plant samples.
 - b) By developing rapid diagnostic kits for field use.
 - c) By identifying and characterizing new plant pathogens.
 - d) All of the above.
127. What is the potential of biotechnology in developing durable disease resistance in crops?
- a) It can be used to introduce multiple resistance genes into a single plant.

- b) It can help identify and clone novel resistance genes from wild relatives of crops.
 - c) It can be used to engineer plants with enhanced defense mechanisms.
 - d) All of the above.
128. How can biotechnology contribute to a deeper understanding of plant-pathogen interactions?
- a) By allowing scientists to study the molecular mechanisms of pathogen infection and plant defense.
 - b) By facilitating the identification of genes involved in pathogen virulence and plant resistance.
 - c) By enabling the development of models to predict disease outbreaks and spread.
 - d) All of the above.
129. Which of the following diseases primarily affects seedlings and young plants, often causing them to collapse and die?
- a) Root rots
 - b) Damping-off
 - c) Cankers
 - d) Smuts
130. What type of plant disease is characterized by the formation of abnormal growths or swellings on roots?
- a) Leaf spots
 - b) Galls
 - c) Rusts
 - d) Wilts
131. Which of the following is a common symptom of stem and branch diseases?
- a) Wilting
 - b) Cankers
 - c) Dieback
 - d) All of the above
132. What is the difference between downy mildew and powdery mildew?
- a) Downy mildew appears as fluffy white growth on the upper leaf surface, while powdery mildew appears as white powdery spots on the lower leaf surface.
 - b) Downy mildew appears as yellow spots on the upper leaf surface, while powdery mildew appears as white powdery spots on the upper leaf surface.
 - c) Downy mildew affects roots, while powdery mildew affects leaves.
 - d) There is no difference; they are the same disease.
133. Which group of plant diseases typically causes symptoms like mosaic patterns, yellowing, and stunted growth?
- a) Rusts
 - b) Smuts
 - c) Viral diseases
 - d) Wilts
134. What are smuts and ergots?
- a) Diseases of fruits and vegetables
 - b) Diseases of roots and stems
 - c) Diseases of flowers and seeds
 - d) Diseases of leaves and branches

135. Which of the following diseases is characterized by the rapid softening and decay of fruits and vegetables after harvest?
- ☐ a) Brown rot
 - ☐ b) Soft rot
 - ☐ c) Damping-off
 - ☐ d) Anthracnose
136. What is the primary symptom of vascular wilt diseases?
- ☐ a) Wilting of the entire plant or parts of the plant
 - ☐ b) Appearance of powdery mildew on leaves
 - ☐ c) Formation of galls on roots
 - ☐ d) Development of cankers on stems
137. Which of the following pathogens can cause vascular wilt diseases in plants?
- ☐ a) Fungi
 - ☐ b) Bacteria
 - ☐ c) Viruses
 - ☐ d) Both a and b
138. Which of the following best describes "damping-off" disease in seedlings?
- ☐ a) A fungal disease-causing rapid wilting and collapse of young plants.
 - ☐ b) A bacterial infection leading to root rot and stunted growth.
 - ☐ c) A viral disease-causing mosaic patterns on leaves and stem distortion.
 - ☐ d) A nutritional deficiency resulting in yellowing and wilting of seedlings.
139. What is a key characteristic of "root rot" diseases?
- ☐ a) They primarily affect the leaves and stems of mature plants.
 - ☐ b) They are often caused by soilborne pathogens that attack the root system.
 - ☐ c) They are easily controlled with foliar fungicide applications.
 - ☐ d) They are typically not a significant problem in agriculture.
140. "Galls" found on plant roots are most likely caused by which of the following?
- ☐ a) Fungi
 - ☐ b) Bacteria
 - ☐ c) Nematodes
 - ☐ d) Viruses
141. Which of these diseases is characterized by the appearance of "cankers" on stems and branches?
- ☐ a) Powdery mildew
 - ☐ b) Rust
 - ☐ c) Anthracnose
 - ☐ d) Damping-off
142. What is a common symptom of "dieback" disease in trees and shrubs?
- ☐ a) Progressive death of plant tissues, starting from the branch tips.
 - ☐ b) Sudden wilting and collapse of the entire plant.
 - ☐ c) Appearance of powdery white spots on leaves.
 - ☐ d) Formation of galls on roots.
143. Which of the following groups of pathogens is responsible for "downy mildew" diseases?
- ☐ a) Oomycetes (water molds)
 - ☐ b) Ascomycetes (sac fungi)
 - ☐ c) Basidiomycetes (club fungi)

- d) Viruses
144. "Powdery mildew" fungi are typically found on which part of the plant?
- a) Roots
 - b) Stems
 - c) Leaves
 - d) Fruits
145. Which of these diseases is characterized by the appearance of reddish-brown, powdery pustules on leaves and stems?
- a) Rust
 - b) Smut
 - c) Anthracnose
 - d) Blight
146. What is the typical appearance of "anthracnose" lesions on plant tissues?
- a) Circular or irregular, sunken spots, often with dark margins.
 - b) White, powdery spots on leaves and stems.
 - c) Reddish-brown, powdery pustules.
 - d) Galls or swellings on roots and stems.
147. "Blights" are plant diseases that often cause what type of damage?
- a) Rapid and extensive death of plant tissues.
 - b) Stunting and yellowing of leaves.
 - c) Formation of galls on roots.
 - d) Wilting of leaves and stems.
148. Which of these symptoms is the characteristic of viral diseases in plants?
- a) Mosaic patterns on leaves
 - b) Yellowing and stunting
 - c) Leaf distortion
 - d) All of the above
149. "Smuts" are fungal diseases that primarily affect which part of the plant?
- a) Roots
 - b) Stems
 - c) Leaves
 - d) Flowers and seeds
150. "Ergots" are fungal structures that replace the seeds of certain grains and grasses. What is a significant concern associated with ergots?
- a) They can be toxic to humans and animals if consumed.
 - b) They reduce the yield and quality of grain crops.
 - c) They can cause respiratory problems in humans.
 - d) All of the above.
151. Which of these diseases is a type of "soft rot" that affects fruits and vegetables?
- a) Brown rot
 - b) Powdery mildew
 - c) Rust
 - d) Canker
152. What is the primary symptom of "vascular wilt" diseases in plants?
- a) Wilting of leaves and stems due to blockage of water transport.
 - b) Appearance of powdery mildew on leaves.

- c) Formation of galls on roots.
 - d) Development of cankers on stems.
153. Which of the following is NOT a typical method for isolating plant pathogens?
- a) Isolation from diseased plant tissue
 - b) Isolation from soil samples
 - c) Isolation from pure water sources
 - d) Isolation from infected seeds
154. Which of the following diseases is NOT categorized as a "wilt"?
- a) Fusarium wilt
 - b) Verticillium wilt
 - c) Bacterial blight
 - d) Oak wilt
155. What is the primary purpose of "disease scoring" in plant pathology?
- a) To identify the specific pathogen causing a disease.
 - b) To assess the severity and progression of a disease.
 - c) To determine the economic impact of a disease outbreak.
 - d) To evaluate the effectiveness of different disease control methods.
156. Which microscopic technique is MOST suitable for observing the structures of fungal pathogens?
- a) Electron microscopy
 - b) Light microscopy
 - c) Spectrophotometry
 - d) Chromatography
157. Which of the following is a parasitic higher plant that can negatively impact crop yields?
- a) Dodder
 - b) Mistletoe
 - c) Rafflesia
 - d) All of the above
158. What is the essential first step in diagnosing a plant disease from a field sample?
- a) DNA sequencing of the infected tissue
 - b) Culturing the pathogen on artificial media
 - c) Careful observation and description of symptoms
 - d) Application of broad-spectrum pesticides
159. Which of the following represents a critical aspect of preserving plant disease specimens for future study?
- a) Maintaining appropriate humidity levels
 - b) Protecting samples from insect damage
 - c) Using proper labeling and documentation
 - d) All of the above
160. Which of the following diseases is caused by a fungal pathogen?
- a) Late blight
 - b) White rust
 - c) Powdery mildew
 - d) All of the above
161. What is the primary mode of transmission for most plant viruses?
- a) Airborne spores

- b) Water splash
 - c) Insect vectors
 - d) Contaminated soil
162. "Damping-off" primarily affects which stage of plant development?
- a) Mature fruit
 - b) Seedlings
 - c) Flowers
 - d) Roots of mature plants
163. Which of the following is a common symptom of cereal rusts?
- a) Wilting of leaves
 - b) Powdery growth on leaf surfaces
 - c) Rusty-colored pustules on leaves and stems
 - d) Galls or abnormal growths on plant tissues
164. Why is it important to study post-harvest diseases in plant pathology?
- a) They can cause significant losses during storage and transport.
 - b) They can affect the quality and safety of food products.
 - c) They can impact the economic viability of agricultural operations.
 - d) All of the above.
165. What is the purpose of isolating plant pathogens from diseased plant material?
- a) To confirm the causal agent of the disease.
 - b) To study the pathogen's characteristics and growth requirements.
 - c) To test the efficacy of potential control methods.
 - d) All of the above
166. Which of the following is NOT a common tool used in plant pathology laboratories?
- a) Microscope
 - b) Petri dish
 - c) Telescope
 - d) Autoclave

GOOD LUCK!!