

Name _____

Unraveling the Mystery: Identifying Microorganisms in Clinical Settings

Open-Ended Response Answer Key

1. Culture and sensitivity testing involves growing microorganisms in a controlled environment and then subjecting them to various biochemical and molecular tests to identify them and determine their susceptibility to antibiotics. This helps in selecting the most effective treatment for infectious diseases, improving patient outcomes.
2. PCR amplifies small amounts of DNA or RNA by using a series of temperature cycles to denature, anneal, and extend DNA strands. This technique allows for the detection of specific microorganisms by amplifying their genetic material, even if present in low quantities.
3. Serological testing plays a crucial role in diagnosing infectious diseases by detecting antibodies produced by the immune system in response to specific pathogens. It helps in confirming the presence of infection and monitoring the body's immune response to the disease.
4. Mass spectrometry has transformed the identification of microorganisms by analyzing their unique protein profiles. This method provides rapid and accurate results, enabling healthcare professionals to identify pathogens more efficiently than traditional techniques. Additionally, mass spectrometry offers advantages such as high sensitivity and specificity, making it an invaluable tool in clinical microbiology.

