



SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

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Unit I Puzzles *B.Pharm II year/IIIsem – Pharmaceutical Microbiology*

□ Case Study Puzzle Questions: History & Scope of Microbiology

Case 1: The Rotten Meat Mystery

A scientist left raw meat exposed to air and saw maggots forming. He claimed life arises spontaneously. Later, another scientist covered the jars with gauze and showed maggots came only from flies.

☞ Who were these two scientists, and what concept did this experiment disprove?

Case 2: The Swan-Neck Flask Challenge

A researcher boiled nutrient broth in a swan-neck flask. Months later, no microbial growth was seen unless the flask neck was broken.

☞ Who performed this experiment, and what major theory did it support?

Case 3: The Cowpox Secret

A country doctor noticed milkmaids who had cowpox didn't catch smallpox. He inoculated a boy with cowpox material, protecting him from smallpox.

☞ Name the scientist and the first vaccine developed from this discovery.

Case 4: The Silk Worm Saver

A disease was devastating the silk industry. A scientist discovered that microorganisms were responsible for silkworm disease.

☞ Who was this scientist, and what field of microbiology did this lead to?

Case 5: The Gram-Stained Puzzle

In a hospital lab, a physician stained bacteria with crystal violet and iodine, followed by alcohol. Some bacteria stayed purple, others turned pink.

☞ What is this staining method called, and why is it still important in medical microbiology?

Case 6: The Pure Culture Hunt

A scientist isolated bacteria in pure culture using potato slices and then developed a solidifying agent (agar). He used this to identify the tuberculosis pathogen.

☞ Who was the scientist, and which bacterium did he identify?

Case 7: The Golden Age Trio

Three scientists are considered pioneers of the “Golden Age of Microbiology.” They contributed to germ theory, postulates, and pasteurization.

👉 Name all three.

Case 8: The Mysterious Filterable Agent

Scientists found that even after passing through a filter that removed bacteria, some infectious agents remained. This led to the discovery of an entirely new type of microorganism.

👉 What was discovered, and what field of microbiology was born from it?

Case 9: The Wonder Drug Accident

A researcher accidentally left a culture plate open. He later noticed mold inhibited bacterial growth. This chance observation led to the discovery of antibiotics.

👉 Who was the scientist, and what was the first antibiotic discovered?

Case 10: The Modern Scope Puzzle

A group of scientists are studying microorganisms to:

- clean oil spills,
- produce recombinant insulin,
- ferment bioethanol,
- study extremophiles in space.

👉 Identify which branches of microbiology each belongs to:

- (a) Environmental microbiology
- (b) Industrial microbiology
- (c) Medical microbiology
- (d) Astrobiology