

Your final exam will be mostly short answer and essay questions, with some vocabulary matching.

Short Answer/Essay Questions

Describe the relationship between catabolism and anabolism, referring to energy consumption, biosynthesis, glucose, ATP, and enzymes.

Describe the process of protein synthesis, not forgetting to mention DNA, mRNA, tRNA, the nucleus, Ribosomes, Transcription, Translation, and amino acids, and mutations in your answer.

Describe what is meant by “gene expression” and why gene expression is important, both in humans and in microbes.

Discuss the past, current, and possible future use of biotechnology and genetic engineering. Use examples to discuss their effects, both beneficial and harmful, on human life.

Why do we classify organisms? How do we classify organisms?

Compare and contrast the Innate and Adaptive Immune Response.

How are diseases spread? Give a general description, including examples, and discuss how we can prevent them from being spread.

What kinds of factors influence the epidemiology of a disease? What effects do they have?

How common are microbes in our world? After answering this question, explain some ways in which they are beneficial to us and some ways in which they are harmful. Finally, decide whether you would rid the world of microbes completely if you could, giving at least three reasons for your answer.

List 3 common diseases of the upper respiratory system, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 common diseases of the lower respiratory system, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 common diseases of the skin, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 different wound infections, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 diseases of the upper digestive system, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 diseases of the lower digestive system, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 diseases of the genitourinary system, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 diseases of the nervous system, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

List 3 diseases of the blood and lymphatic system, including one bacterial, one viral, and one fungal disease (tell which of the diseases is bacterial, viral, and fungal).

Describe in detail one disease of the respiratory system, the skin, or a wound infection, including the diseases' symptoms, incubation period, causative agent, pathogenesis, epidemiology, and prevention and treatment.

Vocabulary

You should be familiar enough with the following terms to match them to their definitions or descriptions.

Ch. 1

Microbiology
 Microbe
 Microorganism
 Spontaneous Generation
 Normal Microbiota/Normal Flora
 Prokaryotic
 Eukaryotic
 Bacteria?
 Archaea?
 Eucarya?
 Endospores
 Bacteria
 Viruses
 Viroids
 Prions
 Fungi
 Protists:
 Algae
 Protozoa

Ch.2

Atom
 Subatomic Particles:
 Proton
 Neutron
 Electron
 Elements
 Chemical Bonding
 Molecule
 Compound
 Ionic Bonds
 Covalent bonds
 Hydrogen Bonds
 pH

ATP

Organic Macromolecules:

Proteins

 Amino Acids

Carbohydrates

 Mono-, Di-, or

Polysaccharides

Nucleic Acids:

 DNA

 RNA

Lipids

 Simple Lipids

 Compound Lipids

Ch.3

Magnification
 Resolution
 Contrast
 Light Microscope
 Electron Microscope
 Atomic Force Microscope
 Simple Stain
 Differential Stains:
 Gram Stain
 Acid-Fast Stain
 Special Stain
 Endospore Stain
 Cytoplasmic Membrane/Cell Membrane
 Active Transport
 Passive Transport
 Peptidoglycan
 Gram-Positive Cell wall
 Gram-Negative Cell wall
 Flagella
 Pili

Chromosome
Plasmids
Ribosomes
Cytoskeleton
Nucleus
Mitochondria
Chloroplasts
Endoplasmic Reticulum
Golgi Apparatus
Lysosomes and Peroxisomes

Ch. 4

Binary Fission
Microbial growth
 Growth Curve:
 Lag Phase
 Log Phase
 Stationary phase
 Death Phase
 Phase of Prolonged decline
Generation time/doubling time
Pure culture
Sterile
Aseptic technique
Culture medium
Agar
Streak-plate method
Stock culture

Closed/batch systems
Open system/continuous culture
Chemostat
Extremophile
Terms in Table 4.2, p. 90
Fastidious
Heterotroph
Autotroph
Photoautroph
Chemoheterotroph
Complex Media
Chemically Defined Media
Selective Media
Differential Media
Anaerobic conditions

Ch. 5

Sterilization
Disinfection
Antiseptics
Pasteurization
Preservation
Nosocomial
D value
Critical instruments
Semicritical instruments
Non-critical instruments
Autoclaving