

Exam Title: 2000430 Biology Technology GR912.FLAGLEREOC

Courses Assessed by this Exam: Biology Technology

Key Vocabulary: Active site, Activation energy, alleles, ampicillin resistance, alanine, analogous structures, anaphase, animal cell, anticodon, arabinose, arthropods, ADP, asparagine, asteroids, ATP, biochemical component, biogeography, canines, carbon dioxide, carbohydrates, catalyst, cell membrane, cellular respiration, central vacuole, cells, chitin, chloroplasts, cholesterol, chromosomes, cilia, classification table, cloning, codominant, coal, codon, coevolution, compound light microscope, conjugation, coral reef, crossing over, cytokinesis, deoxyribonucleic acid, diploid cells, dissecting light microscope, diversity, DNA packaging, DNA replication, DNA template, E. coli bacteria, endangered species, endoplasmic reticulum, environmental sustainability, enzymes, ethyl alcohol, eukaryotic, evolutionary ancestor, exons, exoskeleton, flagella, food vacuole, food web, food chain, fossils, genes, genetic drift, gene flow, gene frequency, genetic mutations, genetic variation, genotype, glucose, Golgi bodies, green fluorescing protein (GFP), homologous chromosome, hydroelectric energy, immune response, incomplete dominance, inorganic molecules, intron, joules of energy, lactic acid, lipids, lysogenic, lytic, membrane bound DNA, meiosis, metaphase, mitochondria, mitosis, monomer, mRNA, mRNA template, mutated sequences, native, natural selection, negatively inducible, negatively repressible, nuclear energy, nuclei, nucleic acids, nucleus disintegration, offspring, operons, passive transport, Pi (inorganic phosphate), phenylalanine, photosynthesis, plasma membrane, plasmid, pores, positively inducible, positively repressible, post-transcriptional, potassium ions, pre-transcriptional, primary succession, prokaryotic, promoter region, promoter DNA, prophase, proteins, Punnett square, pyruvate, reactant, rebound succession, reception, recessive, response, ribosomes, rRNA, RNA polymerase, scanning electron microscope, secondary succession, serine, sex-linked, sister chromatid separation, solar energy, species, stem cell therapy, substrate, survival of the fittest, telophase, template strand, tertiary succession, transduction, transformation, translational, transmission electron microscope, tyrosine, tRNA, vaccine, vestigial structures,

Student Tasks:

- Know the various organelles in plant and animal cells and their functions.
- Be able to compare and contrast an animal cell versus an plant cell.
- Understand the difference between sexual and asexual reproduction and be able to provide examples of both.
- Know the different phases of mitosis
- Know the different phases of meiosis and what special events occur at different phases.
- Be able to compare and contrast mitosis and meiosis.
- Understand the role of ATP in biological processes.
- Be able to compare and contrast prokaryotic versus eukaryotic cells
- Understand the difference between active and passive transport.
- Know the difference between primary and secondary succession.

- Know the process of signal transduction
- Understand how organisms are classified (i.e. binomial nomenclature) into kingdoms, phylums, classes, orders, families, genus, and species.
- Know the difference between complete dominance, incomplete dominance, and codominance (be able to provide examples of each)
- Know the process of crossing over and how it contributes to genetic variation
- Understand the role of carbohydrates as one of the major organic macromolecules and be able to provide examples of common carbohydrates
- Know the pros and cons of various energy sources (i.e. coal, nuclear, solar, hydroelectric).
- Know the difference between aerobic and anaerobic respiration (Know reactants and products)
- Know the difference between active and passive immunity.
- Compare and contrast photosynthesis and cellular respiration (Know the reactants and products).
- Understand how invasive species can negatively impact an ecosystem.
- Know the 10% rule of energy efficiency as it relates to a food web
- Be familiar with population charts and be able to identify carrying capacity.
- Understand sex-linked traits and be able to provide examples.
- Understand the various functions of proteins within a cell.
- Be familiar with cloning and some of the concerns associated with it
- Know the process of transformation and common examples of how bacteria may be transformed
- Understand the various theories regarding the development of the first cells (i.e. primordial soup; endosymbiotic theory, etc.)
- Understand how fossil evidence provides support for the theory of evolution.
- Understand the process of natural selection
- Know the difference between the lysogenic and lytic cycle.
- Understand bacterial conjugation.
- Know the difference between genetic drift and gene flow.
- Know the role of operons in prokaryotic gene expression
- Know the various types of microscopes and their limitations.
- Be able to create a complementary strand of DNA if given a template strand.
- Understand the physical and chemical properties of enzymes.
- Be able to determine how a genetic mutation can lead to a change in RNA during transcription, which can lead to a change in an amino acid during translation.
- Understand the role of transfer RNA (tRNA) in translation.
- Know the process of DNA processing as it relates to introns and exons.
- Understand how human blood typing work