

## The pictures of final exam

### Chapter 23 circulation

- 1- The open circulatory system (vessels in gold) in a grasshopper.
- 2- The closed circulatory system in a fish.
- 3- Two-chambered heart.
- 4- The double circulation and three-chambered heart of an amphibian.
- 5- The double circulation and four-chambered heart of a bird or mammal.
- 6- Blockage of a coronary artery, resulting in a heart attack.
- 7- The blood-clotting process.

### Chapter 25 control of body temperature and water balance

- 1- Mechanisms of heat exchange.
- 2- Circulatory adaptations (**Large ears in elephants**).
- 3- Osmoregulation in a perch, a freshwater fish.
- 4- Osmoregulation in a perch, a saltwater fish.
- 5- Nitrogen-containing metabolic waste products.
- 6- Anatomy of the human excretory system.
- 7- Anatomy of the human excretory system (L.Sec. Kidney)
- 8- Anatomy of the human excretory system (C.Sec. Kidney)

### Chapter 8 the cellular basis of reproduction and inheritance

- 1- Binary fission of a prokaryotic cell.
- 2- Electron micrograph of a duplicated chromosome.
- 3- Chromosome duplication and distribution.
- 4- Mitosis division (INTERPHASE – PROPHASE – PROMETAPHASE – METAPHASE - ANAPHASE - TELOPHASE AND CYTOKINESIS)
- 5- Cleavage in animal.
- 6- Meiosis division (PROPHASE I – METAPHASE I - ANAPHASE I ) (PROPHASE II – METAPHASE II - ANAPHASE II TELOPHASE II AND CYTOKINESIS)
- 7- TETRAD.

### Chapter 27 reproduction and embryonic development

- 1- Asexual reproduction of an aggregating sea anemone (*Anthopleura elegantissima*) by fission.
- 2- Front view of female reproductive anatomy (upper portion)
- 3- Spermatogenesis ( **Primary spermatocyte - Secondary spermatocyte - Sperm cells** )
- 4- The structure of a human sperm cell.

## Pictures of first exam

### Chapter 1 Biology: Exploring Life

- 1- Order Structure of a sunflower
- 2- Regulation jackrabbit
- 3- Growth and development Nile crocodile
- 4- Energy processing metabolism bear eats the fish
- 5 - Response to the environment a Venus flytrap
- 6- Reproduction Penguins
- 7- Evolutionary adaptati seahorses on

### Chapter 3The Molecules of Cells

- 1- A fat molecule made from glycerol and three fatty acids
- 2- Section of a phospholipid membrane
- 3- DNA double helix

### Chapter 4 A Tour of the Cell

- 1- A structural diagram (left) and electron micrograph (right) of a typical prokaryotic cell
- 2- A plant cell
- 3- An animal cell
- 4- A Phospholipid molecule
- 5- Phospholipid bilayer with associated proteins
- 6- TEM (left) and diagram (right) of the nucleus
- 7- Ribosomes
- 8- reticulum Smooth and rough endoplasmic
- 9- The Golgi apparatus
- 10- Lysosome fusing with a food vacuole and digesting food
- 11- Central vacuole in a plant cell
- 12- Contractile vacuoles in *Paramecium*, a single-celled organism
- 13- The mitochondrion
- 14- The chloroplast
- 15- Fibers of the cytoskeleton
- 16- Undulating flagellum on a sperm cell
- 17- Three types of cell junctions in animal tissues

### Animal Tissues

- 1- Types of epithelial tissue
- 2- Types of connective tissue
- 3- The three types of muscle

### Plant Tissues

- 1- The three plant in plant tissue
- 2- Parenchyma cell
- 3- Collenchyma cell
- 4- Sclerenchyma cells fiber
- 5- Sclerenchyma cells sclereid
- 6- Water-conducting cells
- 7- Food-conducting cell (sieve-tube member)

## The pictures of second exam

### Chapter 5 The Working Cell

- 1-The fluid mosaic model for membranes
- 2- Enzyme activity
- 3-Signal transduction
- 4-Transport
- 5- Passive transport of one and two type of molecule
- 6- How animal and plant cells behave in different solutions
- 7-Active transport of a solute across a membrane
- 8-The structure and hydrolysis of ATP, the reaction of ATP and water yields ADP, a phosphate group, and energy
- 9- The catalytic cycle of an enzyme
- 10- Normal binding of substrate and enzyme inhibition

### Chapter 6 How Cells Harvest Chemical Energy

- 1- In cellular respiration, electrons fall down an energy staircase and finally reduce O<sub>2</sub>
- 2- Glycolysis
- 3- An overview of glycolysis
- 4-The citric acid cycle
- 5-Oxidative phosphorylation
- 6- Lactic acid fermentation
- 7- Alcohol fermentation

### Chapter 7 Photosynthesis

- 1- The location and structure of chloroplasts
- 2- Chloroplast
- 3- An overview of the two stages of photosynthesis that take place in a chloroplast

### Chapter 21 Nutrition and Digestion

- 1-Suspension feeding
- 2- Substrate feeding
- 3- Substrate feeding
- 4- Bulk feeding
- 5- The human digestive system (**diagram of the human digestive system is deleted**)
- 6-The small intestine and related digestive organs
- 7-The relationship of the small and large intestine

### Chapter 22 Gas Exchange

- 1- The structure of fish gills **only two pictures in the left**
- 2-The anatomy of the human respiratory system (left) and details of the structure of alveoli (right)
- 3- Negative pressure breathing draws air into the lungs.
- 4-Hemoglobin loading and unloading of O<sub>2</sub>