Biology 112/111

**Exam Review**

# Unit 1 – The Cell

1. hypothesis, controlled experiment, theory

2. abiogenesis/biogenesis, supporters of each theory (Redi, Needham, etc.)

3. cell theory – contributors (Hooke, Schleiden, etc.), three statements

4. two characteristics of all cells (cell membrane and genetic material)

5. two categories of cells (prokaryotes/eukaryotes)

6. cell organelles (nucleus, ribosome, Golgi apparatus, etc.) and their functions

7. cell membrane – fluid mosaic model, lipid (hydrophilic/hydrophobic parts) molecule/bilayer, embedded

components

8. types of transport – active/passive, examples (diffusion, molecular transport, etc.), equilibrium

9. photosynthesis – balanced chemical equation, ATP (full name and components), chlorophyll,

carrier molecules (NADP+, etc.), parts of a chloroplast (granum, stroma, etc.)

- light dependent reaction (i) location of reaction (thylakoid membrane)

(ii) produces O2, NADPH, ATP

- Calvin cycle (i) location of reaction (stroma)

(ii) produces glucose (C6H12O6)

10. cellular respiration – balanced chemical equation

- three stages: glycolysis, Krebs cycle, electron transport chain

- know where each occurs, starting chemical(s), products ie/ glycolysis occurs in the

cytoplasm of a cell, it starts with glucose and produces 2 pyruvic acid, 2NADH

and 2ATP

- 36 ATP produced as a result of aerobic cellular respiration

11. lactic acid and alcoholic fermentation – occur under anaerobic conditions

# Unit 2 – Biodiversity

1. taxonomy

2. Linnaeus’s seven taxa (kingdom, phylum, class, order, family, genus, species)

3. binomial nomenclature – ie/ Felis catus (1st - genus, 2nd - species)

4. three domains – Bacteria, Archaea, Eukarya

5. six kingdoms – Eubacteria (prokaryotes), Archaebacteria (prokaryotes), Protista, Fungi, Plantae,

Animalia

6. viruses – composed of DNA/RNA and a protein coat/capsid

- bacteriophage infects bacteria

- lytic cycle

- lysogenic cycle

7. bacteria – shapes/arrangements

- obligate aerobes, obligate anaerobes, facultative anaerobes

- binary fission, conjugation

8. protists – animal-like, plant-like, fungus-like

9. fungi – eukaryotic heterotrophs with cell walls made of chitin

- digest food outside of their bodies and then absorb it

- hyphae, mycelium, fruiting body

- common molds (Zygomycota), sac fungi (Ascomycota), club fungi (Basidiomycota), imperfect

fungi (Deuteromycota)

10. plants – eukaryotic autotrophs with cell walls made of cellulose

- alternation of generations: gametophyte (1N)/sporophyte (2N)

- vascular tissue: phloem and xylem

- phyla: Bryophyta (mosses), Pterophyta (ferns), Coniferophyta (conifers) and Anthophyta

(flowering plants)

- male/female parts of a flower (diagram)

- chart that compares the plant phyla (spores, seeds, vascular tissue, dominant stage of lifecycle)

Monocot vs. Dicot

11. animals – eukaryotic heterotrophs (no cell walls)

- invertebrates/vertebrates

- animal phyla (Porifera, Cnidaria, etc.) and examples

- embryology: zygote, blastula, blastopore, protostome, deuterostome

- germ layers: endoderm, mesoderm, ectoderm

- coelom

- coelomate, pseudocoelomate, acoelomate

- body symmetry (radial/bilateral), sides/ends (dorsal, ventral, anterior, posterior)

- cephalization

- chart comparing invertebrate characteristics – Page 748

- essential functions (feeding, digestion, respiration, etc)

- homeostasis

- types of digestion, circulatory systems, skeletons and reproduction

- hermaphrodite

- four characteristics of chordates

- non-vertebrate chordates (tunicates, lancelets)

- controlling body temperature (ectotherms/endotherms)

# Unit 3 – Maintaining Dynamic Equilibrium

1. Circulatory system: function, heart, chambers, valves, septum,

blood vessels (**arteries**, arterioles, **capillaries**, venules, **veins**),

pulmonary/systemic circulation,

blood (**plasma**, plasma proteins , **red blood cells**, **white blood cells** , , erythrocytes,

leukocytes, platelets),

clotting process, - **Fibrinogen -** thrombin, fibrin, thromboplastins , platelets

circulatory problems

2. Respiratory system: function, nose, pharynx, epiglottis, larynx, trachea, lung,

bronchus, bronchiole, alveolus, pleural membranes, diaphragm,

gas exchange, inhalation/exhalation, affects of tobacco,

respiratory problems

3.Immune System: Non specific defence vs. Specific defence

Autoimmune disease

4. Digestive System: Diagram

Laryngitis, Chronic bronchitis, emphysema, heart murmur, varicose veins, haemophilia, aneurysm, arteriosclerosis, pleurisy, asthma