**BSC 2085L**

**“Need to Know” Sheet**

**Unit 1**

***MEMORIZE*** the following topics below. Word banks will not be provided.

**QUIZ 1 MATERIAL – Anatomical Terminology**

Section 1.6 (p. 23-29)

* Describe the anatomical position
	+ Figure 1.12
* Surface regions of the human body
	+ Figure 1.12 (memorize all labeled terms **in parentheses** – if labeled term has no parenthesis, memorize label in **bold**)
* Directional terms applied to the human body
	+ Figure 1.13 (memorize all labeled terms and be able to use them in context in a sentence – practice example sentences are in the OpenStax text on pages 24-25)
* Planes of the body
	+ Figure 1.14 (memorize all labeled terms)
* Dorsal and ventral body cavities
	+ Figure 1.15 (memorize all labeled terms)
* Abdominal regions and quadrants
	+ Figure 1.16 (memorize all labeled terms – do not use acronyms)
* Serous membranes: be able to distinguish between the terms pleura, pericardium & peritoneum
	+ Figure 1.17 (memorize all labeled terms)

**PRACTICAL 1 MATERIAL (the remainder of this document)**

**Cell Organelles:**

Sections 3.2 & 3.3 (p. 97-102, 104-107)

* Identify the cell structures/organelles below from a picture, model, diagram or figure and describe their basic functions
	+ Figure 3.13
	+ nucleus
		- contains chromatin and nucleolus
	+ nucleolus
		- assembles ribosomes
	+ chromatin (called chromosomes during cell division)
		- location of DNA (genes); provides genetic regulation of the cell
	+ nuclear membrane
		- double layer membrane; outer boundary of nucleus
	+ nuclear pore
		- allows materials to move between nucleus and cytoplasm
	+ cell membrane (plasma membrane)
		- regulates passage of materials into and out of the cell (selectively permeable)
	+ rough endoplasmic reticulum
		- synthesis, transport and packaging of proteins
	+ smooth endoplasmic reticulum
		- synthesis, transport and packaging of carbohydrates and lipids
	+ ribosome
		- site of protein synthesis
	+ centriole
		- cylindrical organelle that occurs in pairs; involved in the development of spindle fibers
	+ centrosome
		- contains centrioles
	+ Golgi body (apparatus)
		- final assembly, transport and packaging of materials, mostly for secretion from cell
	+ secretory vesicles
		- export materials via exocytosis
	+ lysosome
		- digestion within the cell of large molecules into their simpler components
	+ peroxisome
		- detoxify harmful toxins like alcohols and hydrogen peroxide
	+ mitochondrion
		- site of aerobic (oxygen requiring) steps of cellular respiration, where most ATP is produced
	+ cytoplasm
		- all material inside the cell except the nucleus
	+ cytosol
		- aqueous part of cytoplasm

**Cell Growth & Division:**

Section 3.5 (p. 115-119)

* Identify the phases of cell division and mitosis from a picture, model, diagram or figure
* Describe the following events that occur in each phase of the cell cycle (Figure 3.32):
	+ Interphase
		- non-dividing cell
		- general cell growth
		- DNA replication
	+ Mitosis
		- Prophase
			* cell division
			* nuclear membrane disappears
			* nucleolus disappears
			* chromatin condenses into chromosomes
			* spindle apparatus forms
		- Metaphase
			* chromosomes line up along metaphase plate
		- Anaphase
			* separation of genetic material
			* sister chromatids (chromosomes) pulled to opposite poles by spindle apparatus
		- Telophase
			* chromosomes reach the opposite poles and clump
			* events of prophase are reversed
			* chromosomes convert to chromatin
			* nucleolus and nuclear membrane reform
			* spindle apparatus dismantled
	+ Cytokinesis (occurs simultaneously with telophase)
		- division of the cytoplasm into 2 cells
* Identify the following structures from a picture, model, diagram or figure:
	+ chromatin
	+ chromosome
	+ chromatid
	+ centromere
	+ spindle apparatus (centrosome) and its parts:
		- spindle fibers
		- pole (centrioles)
		- aster
		- cleavage furrow

**Tissues:**

Section 4.1 (p. 136-137)

* Define the term “tissue” and explain how tissues fit into the levels of biological organization (chemical, organelle, cell, tissue, organ, organ system, organism)
* Know the typical characteristics of the 4 tissue types (Figure 4.2):
	+ epithelial
	+ connective
	+ muscular
	+ nervous

For **ALL** the tissues below, be able to:

1. identify the type of tissue from an image
2. provide one function of the tissue
3. provide one location in the body where the tissue occurs.

Section 4.2 (p. 140-146)

* Epithelial Tissues (Figures 4.6, 4.8)
	+ simple squamous epithelium
	+ simple cuboidal epithelium
	+ simple columnar epithelium
	+ pseudostratified ciliated columnar epithelium
	+ stratified squamous epithelium
	+ transitional epithelium

Section 4.3 (p. 150-159)

* Connective Tissues
	+ areolar tissue
	+ adipose tissue (Figure 4.13)
	+ cartilages (Figure 4.16)
		- hyaline cartilage
		- elastic cartilage
		- fibrocartilage
	+ compact bone tissue
	+ blood tissue (Figure 4.17)
		- red blood cell (erythrocyte)
		- white blood cell (lymphocyte)
		- platelet

Section 4.4 (p. 160-162)

* Muscle Tissues (Table 4.2, Figure 4.18)
	+ skeletal muscle
	+ cardiac muscle
	+ smooth muscle

Section 4.5 (p. 162-163)

* Nervous Tissue (Figure 4.20)
	+ neuron (Figure 4.19)

**Skin (the Integument):**

Section 5.3 (p. 196-200)

* Know the basic functions of the integumentary system as described in the OpenStax text.

Sections 5.1 & 5.2 (p. 180-196)

* Identify the following structures on a picture, model, diagram or figure (Figures: 5.2, 5.3, 5.4, 5.5, 5.7, 5.11, 5.12, 5.14, 5.15)
	+ epidermis
		- Identify the following *sub*layers of the epidermis on a picture, model, diagram or figure:
			* stratum corneum
			* stratum lucidum
			* stratum granulosum
			* stratum spinosum
			* stratum basale (germinativum)
	+ dermis
		- dermal papillae
		- papillary layer
		- reticular layer
	+ hypodermis
	+ eccrine (sweat) gland
		- duct goes to skin surface
	+ apocrine (sweat) gland
		- duct goes to hair shaft
	+ sebaceous gland
	+ arrector pili muscle
	+ hair shaft
	+ hair root
	+ hair follicle
	+ hair bulb
	+ hair medulla
	+ Meissner’s corpuscle
	+ Pacinian corpuscle
	+ free nerve ending
	+ adipose tissue
	+ arrector pili muscle
* Know what substance is secreted by the different kinds of skin glands (eccrine, apocrine, sebaceous)
* Know the function of keratinocytes and melanocytes
* Characteristics of 1st, 2nd and 3rd degree burns as described in the OpenStax text (p. 205) and illustrated on a picture, model, diagram or figure