**Mid-Term Assignment**

**Course Title: Human Physiology I**

**DT plus Rad1st semester**

**Instructor: Dr. M.Shahzeb khan (PT)**

 **Marks: 30**

**Note:**

* **Attempt all questions, all questions carry equal marks.**
* **Answer Briefly and to the point, avoid un-necessary details**

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**Q1:** (A) Write down six level of organization in detail.

* Ans: **CHEMICAL LEVEL**
	+ Basic level
		- **Atoms** the smallest unit of matter
			* Essential atoms for life include carbon (C), hydrogen (H), oxygen (O), nitrogen (N), phosphorus (P), calcium (Ca), and sulfur
		- **Molecules** two or more atoms joined together
			* Deoxyribonucleic acid (DNA)
			* Glucose
* **CELLULAR LEVEL**
	+ Molecules combine to form cells
		- **Cells** are thebasic structural and functional units of an organism
		- Many kinds of cells in the body
		- Muscle cells, nerve cells, epithelial cells, etc
* **TISSUE LEVEL**
	+ **Tissues** are groups of cells and materials surrounding them
		- Four basic types of tissues:
			* Epithelial
			* Connective
			* Muscular
			* Nervous
* **ORGAN LEVEL**
	+ Tissues are joined together to form organs
		- **Organs** are structures that are composed of two or more different types of tissues
		- Specific functions and recognizable shapes
			* Examples:
			* Heart, lungs, kidneys
			* Stomach is made of several tissues
			* Serous membrane, smooth muscle and epithelial layers for digestion
* **SYSTEM LEVEL**
	+ **A system** consists of related organs with a common function
	+ Organ-system level
		- Digestive system breaks down and absorbs food
		- It includes organs such as the mouth, small and large intestines, liver, gallbladder, and pancreas
		- Eleven systems of the human body

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(B) Write difference between negative and positive feedback mechanism.

* **Negative Feedback systems**
	+ Reverses a change in a controlled condition
		- Regulation of blood pressure (force exerted by blood as it presses again the walls of the blood vessels)
* **Positive Feedback systems**
	+ Strengthen or reinforce a change in one of the body’s controlled conditions
		- Normal child birth

**Q 2:**(A) What is cell organelles?

* Ans: **The organelles in the cytoplasm are:**
	+ Nucleus (Nucleus is the largest organelle inside a nuclear envelope (10-20 micron)
	+ Mitochondriaa (It is called as power house of the cell )
	+ Ribosomes (Tiny granules composed of RNA and protein )
	+ Endoplasmic reticulum (Interconnecting membranous canals in the cytoplasm.
	+ Golgi apparatus (Consists of stacks of closely folded flattened membranous sacs )
	+ Lysosomes (Type of secretory vesicle with membranous walls formed by GA. )

 (B) Write down detail of any four of cell organelles.

Ans: (1)Ribosomes:>

* Tiny granules composed of RNA and protein
* Present on the outer surface of the nuclear envelope and rough endoplasmic reticulum
* Make proteins for use within the cell such as enzymes required for metabolism

(2). Golgi apparatus:>

* Consists of stacks of closely folded flattened membranous sacs
* Proteins move from ER to GA where they are **packed into membrane-bound vesicles** called secretory granules.
* These vesicles move to the plasma membranes and fuse with it, when in need
* The contents then leave the cell by exocytosis

(3). Mitochondria:>

* It is called as power house of the cell
* Energy is made available in cell) by synthesizing ATP
* Most active cell types have the greater number of mitochondria

e.g. liver, muscle

* (4). Nucleus
	+ Nucleus is the largest organelle inside a nuclear envelope (10-20 micron)
	+ Nucleus contains body’s genetic material (gene)
	+ The cells with nucleus are called
	+ **eukaryotes** – cell with nucleus
	+ **Prokaryote -** cell without nucleus
	+ Nucleolus is present within the nucleus which involves in the manufacture or synthesis and assembly of the components of ribosomes.

**Q3:** (A) Writedown physiology of digestion.

Ans: The process by which food is broken down into simple chemical compounds that can be absorbed and used as nutrients or eliminated by the body is called digestion.

* The **gastrointestinal tract** (**digestive tract**, **digestional tract**, **GI tract**, **GIT**, **gut**,

or **alimentary canal**) is an organ system within humans and other animals which takes in

food, digests it and absorb energy and nutrients, and expels the remaining waste as feces.

* **The major organs of the digestive system:**
* Mouth.
* Pharynx.
* Esophagus.
* Stomach.
* Small Intestine.
* Large Intestine.
* Rectum.