Assingment-1[Summary chapter-1]

Sarthak Kulshrestha

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1. Anatomy is the science of body structures and the relationships among structures; physiology is the science of body functions.Dissection is the careful cutting apart of body structures to study their relationships.

2. **Different Structural Organization In Body-** 1.Chemical-It include atoms of various elements.Ex-carbon,nitrogen,oxygen etc. 2.Cellular level-Molecules combine to form cells, the basic structural and functional units of an organism. 3.Tissue level-Tissues are groups of cells and the materials surrounding them that work together to perform a particular function. 4.Organ level-organs are structures that are composed of two or more different types of tissues. 5.Organ system-Group of organs which perform particular function form organ system.

3. Non Invasive Techniques-A noninvasive diagnostic technique is one that does not involve insertion of an instrument or device through the skin or a body opening.Palpation the examiner feels body surfaces with the hands. Ex-palpating the abdomen to detect enlarged or tender internal organs or abnormal masses. In auscultation the examiner listens to body sounds to evaluate the functioning of certain organs, oft en using a stethoscope to amplify the sounds.Percussion the examiner taps on the body surface with the fingertips and listens to the resulting sound.Hollow cavities or spaces produce a different sound than solid organs.

4. Life process-metabolism, responsiveness,movement, growth, differentiation, and reproduction.

5. Homeostasis is the maintenance of relatively stable conditions in the body's internal environment. fluid within cells is intracellular fluid abbreviated ICF. The fluid outside body cells is extra cellular fluid (ECF) . The ECF that fills the narrow spaces between cells of tissues is known as interstitial fluid.Disruptions of homeostasis come from external and internal stimuli and psychological stresses.The nervous and endocrine systems acting together or separately regulate homeostasis. The nervous system detects body changes and sends nerve impulses to counteract changes in controlled conditions. The endocrine system regulates homeostasis by secreting hormones.

6. **Feedback Mechanism-** Receptors monitor changes in a controlled condition and send input to a control center (afferent pathway). The control center sets the value (set point) at which a controlled condition should be maintained, evaluates the input it receives from receptors (efferent pathway), and generates output commands when they are needed. Effectors receive output from the control center and produce a response (effect) that alters the controlled condition. It is of 2 types- 1.Negative feedback system reverses a change in a controlled condition.Ex-If a stimulus causes blood pressure (controlled condition) to rise, baro receptors(pressure-sensitive

nerve cells, the receptors) in blood vessels send impulses(input) to the brain (control center). The brain sends impulses (output) to the heart (effector). As a result, heart rate decreases (response) and blood pressure decreases to normal (restoration of homeostasis). 2.Positive feedback system tends to strengthen or reinforce a change in one of the body's controlled conditions.Ex-heart pumps blood under sufficient pressure to body cells to provide them with oxygen and nutrients to maintain homeostasis. Upon severe blood loss, blood pressure drops and blood cells (including heart cells) receive less oxygen and function less efficiently. If the blood loss continues, heart cells become weaker, the pumping action of the heart decreases further, and blood pressure continues to fall.

7. Homoestasis Disruption—homeostatic imbalances—can lead to disorders,diseases, and even death. A disorder is a general term for any abnormality of structure or function. A disease is an illness with a definite set of signs and symptoms.

8. **Body Position-** When the body is lying face down, it is in the prone position. If the body is lying face up, it is in the supine position.The principal regions are the head, neck, trunk, upper limbs, and lower limbs. Within the regions, specific body parts have anatomical names and corresponding common names. Examples are thoracic (chest), nasal (nose), and carpal (wrist).

9. **Planes-**

Planes are imaginary flat surfaces that are used to divide the body or organs to visualize interior structures. A midsagittal plane divides the body or an organ into equal right and left sides. A parasagittal plane divides the body or an organ into unequal right and left sides. A frontal plane divides the body or an organ into anterior and posterior portions. A transverse plane divides the body or an organ into superior and inferior portions. An oblique plane passes through the body or an organ at an oblique angle.

10.Section- Sections are cuts of the body or its organs made along a plane. They are named according to the plane along which the cut is made and include transverse, frontal, and sagittal sections.

11.Body Cavities- Body cavities are spaces that enclose internal organs. Bones, muscles, ligaments, and other structures separate the various body cavities from one another.The cranial bones form a hollow space of the head called the cranial cavity.The thoracic cavity or chest cavity is formed by the ribs, the muscles of the chest, the sternum (breastbone), and the thoracic portion of the vertebral column. Within the thoracic cavity are the pericardial cavity, a fluid-filled space that surrounds the heart, and two fluid-filled spaces called pleural cavities , one around each lung.The abdomino pelvic cavity extends from the diaphragm to the groin and is encircled by the abdominal muscular wall and the bones and muscles of the pelvis.Abdominal cavity contains the stomach, spleen, liver, gallbladder, small intestine.

12.Ageing- Aging is a normal process characterized by a progressive decline in the body's ability to restore homeostasis.Aging produces observable changes in structure and function and increases vulnerability to stress and disease.Ex-wrinkled skin, gray hair, loss of bone mass.

13.Medical Imaging- Radiography-X-Rays are passed through body and resulting 2d image is radiography.X-ray does not pass through bones hence appear white and hollow structures appears black.

MRI-Magnetic Resonance Imaging is a process in which body is exposed to a high-energy magnetic field, in body fluids and tissues to arrange themselves in relation to the field.The result is a 2d or 3d blueprint of cellular chemistry.Ex-Kidney and liver disorder.

CT Scan-computer-assisted radiography, an x-ray beam traces an arc at multiple angles around a section of the body.Ex-Kidney Cancer.

Ultrasound-High-frequency sound waves produced by a handheld wand reflect off body tissues and are detected by the same instrument. The image, which may be still or moving, is called a sonogram and is shown on a video monitor.Ex-Visualize fetus during pregnancy.

PET Scan-Positron Emission Technique in which computer receives signals from the gamma cameras and constructs a PET scan image, displayed in color on a video monitor. The PET scan shows where the injected substance is being used in the body.Ex-Used to study physiology of heart.

Endoscopy-Endoscopy involves the visual examination of the inside of body organs or cavities using a lighted instrument with lenses called an endoscope and then projected to monitor.Ex-colonoscopy