Tasks of Physiology

- 1. Circuitry and pressures in the cardiovascular system
- *. Hemodynamics, relationships between blood flow, pressure, and resistance and types and characteristics of blood vessels
- ***.** Cardiac electrophysiology, electrocardiogram and schematic diagram showing the sequence of activation of the myocardium.
- Cardiac muscle contraction, cardiac muscles properties and factors affecting on it ... and solve the following problem

Patient problem. A man has an end-diastolic volume of $1 \le 1$ ml, an end-systolic volume of $1 \le 1$ ml, and a heart rate of $1 \le 1$ beats/min. What is his stroke volume, his cardiac output, and his ejection fraction?

•. Stroke volume, ejection fraction, cardiac work, venous return and cardiac output and factors affecting on each and solve the following problem

Patient problem. A man has an end-diastolic volume of $\sqrt{\epsilon} \cdot \text{ml}$, an end-systolic volume of $\sqrt{\epsilon} \cdot \text{ml}$, and a heart rate of $\sqrt{\circ}$ beats/min. What is his stroke volume, his cardiac output, and his ejection fraction?

\. Events of the cardiac cycle and solve the following problem

Patient problem. A man has a resting O₂ consumption of 250 mL O₂/min, a femoral arterial O₂ content of 0.20 mL O₂/mL blood, and a pulmonary arterial O₂ content of 0.15 mL O₂/mL blood. What is his cardiac output?

- V. Regulation, maintenance of Arterial Blood Pressure and Integrative Functions of the Cardiovascular System
- Structure of the Respiratory System, Mechanics of Breathing, Lung Volumes and Capacities, Control of Breathing,
- **٩.** Ventilation/Perfusion Relationships, Gas exchange, co^γ and Oxygen Transport in Blood,
- **`**. Mechanics of Breathing, intrapleural pressure in a normal person and Compliance of the lungs, the chest wall, and the combined lung and chest-wall system.
- **11.** Structure of the Respiratory System, Mechanics of Breathing, and Effect of alveolar size and surfactant on collapsing pressure.
- Y. Design The renal physiology mid map illustrates major renal processes. Conceptually, renal processes can be split into those creating the filtered load at the renal glomerulus and those modifying the filtered load as it passes through the renal tubule system.
- ۲۳. Function of the kidneys, Glomerular Filtration, Reabsorption and Secretion,
- 14. Water, Sodium, Potassium, Phosphate, Calcium, and Magnesium Balance, and Concentration and Dilution of Urine
- **1**°. Gastrointestinal physiology mind map illustrating motility, digestion, and absorptive processes.
- **13.** The main secretions of the gastrointestinal tract and the locations of skeletal and smooth muscle that propel the diet through the tract.
- **1V**. The Absorption of dietary components into the hepatic portal vein or the lacteals.
- 14. The motility of each part of the gastrointestinal tract and its significance, and Phases of swallowing and Phases gastric secretion and their regulation.
- 14. The mechanism for secretion of Saliva, hydrochloric acid, Secretin, Cholecystokinin, Bile.
- * . Structure and functions of the gastrointestinal tract and give short notes about GIT hormones
- *** 1.** Digestion and absorption of protein, carbohydrates and fat and give short notes about GIT hormones
- ******. Spleen and Liver FUNCTION and Physiology of their secretions and give short notes about GIT hormones

- **. Blood and hemostasis mind map shows the convergence of clotting factors, platelets, and red blood cells in forming a clot. Blood components are synthesized in the liver, bone marrow, and thymus. A major functional role for blood is the formation of a platelet plug or a clot in response to vascular injury.
- Y¹. Extrinsic and Intrinsic pathway for initiating blood clotting and blood structures involved in these processes and give short notes about blood groups
- ***•.** Hemoglobin, Hematocrit value and types of Anemias
- **. oxygen dissociation curve carbon dioxide transport and pulmonary function tests
- **YV.** The plasma concentration of the primary metabolic substrates (glucose and fatty acids) represents the balance between gastrointestinal absorption, exchange with storage pools, and loss through metabolic or non-metabolic routes.
- *A. The growth hormones physiology and give some details about the effects of if secretions abnormalities
- ^{**Y**4.} The comparison anterior and posterior pituitary hormones
- *. Growth hormone and comparison between Prolactin and Oxytocin hormones
- *1. The comparison anterior and posterior pituitary hormones, Hypothalamic connection with Posterior and Anterior Pituitary Hormones