**Mid-Term Assignment**

**Course Title: Human Physiology Instructor: Dr Sara Naeem Total Marks: 30**

1. Differentiate between
* Positive and negative feedback mechanism
* Smooth and rough endoplasmic reticulum
* Lysosomes and peroxisomes
* Pepsin and pepsinogen
* Peptic ulcer and duodenal ulcer

1. What is portal triad. Give clinical significance of portal triad.
2. Give properties of cell membrane structure.

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Question 1:**Differentiate between **•positive and negative feedback mechanism: •Positive feedback:** **•** A feedback mechanism resulting in the amplification or growth of the output signal. **•** strengthen or reinforce a change in one of the bodys controlled condition. **•**breakdown the homeostasis of the system. •less common but occur in specific situation. **•example:** childbirth, blood clotting, and fruit ripening **•**Negative feedback: A feedback mechanism resulting in the inhibition or slowing down of a process. **•**reverses a change in a controlled condition. **•**always maintain the condition of homeostasis. **•**occur more often in the body helping in maintaining various condition of the body. **•example:** regulation of body temperature, blood pressure and fluid content. **•Smooth and rough endoplasmic reticulum:. •Smooth endoplasmic reticulum:** **•**the site of lipid synthesis. \_phospholipid. \_cholestrol. **•**growing ER membrane buds continuously forming transport vesicles, most of which migrate to the Golgi apparatus. **•rough endoplasmic reticulum:. •**outer membrane surface covered with ribosomes **•**newly synthesized proteins are extruded into the ER matrix. **•**protein are processed inside the matrix •cross linked, •folded, •glycosylated, •cleaved. **•Lysosomes and peroxisomes. •Lysosomes:. •**vesicular organelle formed from budding Golgi **•**contain hydrolytic enzymes (acid hydrolases). \_phosphtases \_nucleases. \_proteases. \_lipid degrading enzymes. \_lysosome digest bacteria. •fuse with pinocytotic or phagocytotic vesicles from digestive vesicles. **Peroxisomes:. •**similar physically to lysosomes. **•**two major differences. •formed by self replication. •they contain oxidases. \_oxidise substances eg (alcohol) that may be otherwise poisonous **•Pepsin and pepsinogen:. •Pepsin:.**  •pepsin is a proteolytic enzyme. **•**pepsin is the active form of pepsinogen. •pepsin can hydrolyze protein. •pepsin can be activated by lowering the pH of the medium. •pepsin is not stable in neutral and alkaline solutions **•pepsinogen:. •**pepsinogen is a proenzyme. •pepsinogen is the inactive precursor of pepsin. •pepsinogen is secreted by chief cells and pyloric gland. •pepsinogen is converted to pepsin by hydrochloric acid •unlike the pepsin , pepsinogen Secretion is stimulated by vagal simulation, gastrin, and histamine. •pepsinogen is stable in both neutral and alkaline solutions. **•Pectic ulcer and duodenal ulcer:.** •**pectic ulcer:.** •A pectic ulcer is a sore on the lining of our stomach , small intestine or esophagus. •loss of tissues from the lining of the digestive tract may be acute or chronic. •burning stomach pain. •feeling of fullness, bloating •fatty food intolerance. •heartburn. •nausea. **•Duodenal ulcer:.** •occur in the duodenum. •epigastric pain 2\_5 hours after eating. •heart burn, chest discomfort are less common but may be seen •pain may awaken the patient during the night. •severe symptoms include blood in the stool that appears dark and tarry, difficulty in breathing, feeling faint or losing consciousness, vomiting blood **Question** **2: what is portal traid give clinical significance of portal traid?**  Portal traid are located at the corner of liver lobules portal traids are normally surrounded by much larger areas packed with hepatic cords and sinusoids \_each portal traid contain there more or less conspicuous tubular structures all wrapped together in connective tissues. 1) a branch of the bile duct. 2) a branch of the portal vein 3) a branch of the hepatic artery of these three the bile duct is the most easily recognized by the conspicuous round nuclei in it’s cuboidal epithelium \_ the portal traid visible in any random section of liver vary widely in the absolute size of the vessels and duct therein. •since the portal vein brings much more blood to the liver than does the hepatic artery each branch of the portal vein is typically much larger than the associated branch of the hepatic artery the relative sizes of the paired vessels in a portal traid thus differ from those of a typical vein/artery pair in other parts of the body,where the artery delivers the same volume of blood that the vein subsequently return •an increase in the amount of connective tissue extending out from portal traids is characteristic of cirrhosis(sclerosis/fibrosis/ scaring of liver) in which damaged hepatic tissue is replaced by scar tissue (fibrous connective tissue) **Question 3:Give properties of cell membrane structure? •Properties of cell membrane structure:.** •cell membrane are thin enclosure that form closed boundaries. •cell membrane are made up of lipids, protein and carbohydrates. •cell membrane consist of a phospholipid bilayer. •cell membrane are held together by non covalent interaction. •cell membrane is a physical and chemical barrier which separate the inside of the cell from the environment. •it is impermeable to water soluble molecules •it is soft and fexible. •spontaneously prone to forming self repairing process •the phospholipid array themselves in a bilayer, with phosphate rich head on the outside and hydrophobic lipid tail on the inside. •the lipid bilayer consist of phospholipid which are amphipathic molecules eg where one end of the molecule is hydrophilic and other is hydrophobic •it is a liquid bilayer of lipid with embedded proteins, in the protein and lipids are relatively mobile over small distance