



M.A. Degree Examination, January 2024

Name: -----

First Semester Scientific English

Surname: -----

Master Two Toxicology Duration: 01hr30mints

Question One (3Marks)

Key to Questions

What are the main functions of the following human structure?

Human Structures	Functions
Alveoli	Gas exchange, oxygenation of blood, Removal of carbon dioxide.
Small intestine	Digestion: absorbing nutrient → transport and motility.
Large intestine	absorption of water and electrolyte, synthesis of certain vitamins (K, B) Fermentation and digestion of fiber and certain carbohydrates.
Liver	Produce bile, store nutrient, metabolism, Regulate of cholesterol
gallbladder	It stores and concentrate bile that produced by liver.
Pancreas	Pancreas has both endocrine and exocrine function: Exocrine function = It produces digestive enzymes that released into small intestine to help break down carbohydrates, proteins and fats from food. Endocrine = It produce insulin and glucagon

Question Two (6Marks)

Name the main groups of bones that form the axial skeleton

The group of bones that form the axial skeleton include =

① *the skull - bony framework. It consists of eight cranial and fourteen facial bones. The cranial bone make up the protective framework around the brain, the facial bone make up the upper and the lower jaw.*

② *Rib cage - make up of 24 bones → first seven true ribs, next 3 pair are false and last 2 are floating.*

③ *Vertebral column consist of 33 vertebrae. It divides into 3 categories*

the first seven vertebrae are called cervical, the next twelve vertebrae called thoracic vertebrae then lumbar vertebrae that are five then, the sacrum.

the bottom called coccyx from 3-5 bones.

Question Three (6Marks)

➤ Differentiate between pelvic girdle and pectoral girdle

1. Location: the pelvic is located in the lower part of the body while the pectoral girdle is located in the upper part of the body.
2. Function: pelvic supports the weight of the upper body and provides attachment point for the lower limb while the pectoral girdle provides attachment point for the upper limb and allows for wide range of motion.

➤ Differentiate between cartilage and bones

- ✓ Cartilage is a firm, flexible tissue that contains collagen and elastin. Bone is hard, dense tissue that contains collagen fibers and minerals such as calcium and phosphate.
- ✓ Cartilage provides structural support, cushioning, and flexibility while bone provides structural support, protection and serves as a site of blood cell production.

➤ Differentiate between a male and female pelvis?

- shape - the male pelvis is narrower and taller while the female pelvis is wider and shallower, the pelvic inlet of male is heart-shaped while female inlet is oval. Sph shaped. The pubic angle of male is less than 90, while female more than 90 degrees, the Sacrum is longer and curved in male and shorter and less curved in female.

Question Four (5 Marks)

The Respiratory system is involved in bringing oxygen into and carbon dioxide out of the body. Explain this process.

Air enters the body through the nostril where it is cleaned, moistened and heated to the body temperature and passes through trachea → bronchi → bronchioles → Alveoli.

In Alveoli the oxygen combines with the haemoglobin in the red blood cells to form oxyhaemoglobin. This is carried away in the pulmonary vein to the heart and then distributed to all parts of the body. When the blood reaches an active organ the oxyhaemoglobin dissociates again giving up its oxygen for respiration to produce energy.

Carbon dioxide produced as one of the end products combines with sodium bicarbonate in the plasma to form bicarbonates.

In the lungs the bicarbonates are broken down by the enzyme to liberate carbon dioxide. This diffuses into the alveoli and eventually expelled through the nostrils or the mouth.