

ANATOMY AND PHYSIOLOGY TEST

PASS MARK – 80%

SECTION 1:(40 MARKS)

APPLIED ANATOMY AND PHYSIOLOGY

1. Mr. AA was rushed to the emergency room last night with complains of difficulty breathing. After an x-ray was done, doctors said he had a lot of fluid surrounding the left lungs which is compressing on the lungs
 - a. What condition does Mr. AA has: **pleural effusion**
 - b. What has happened to his lungs: **lung collapse; lung is compressed**
 - c. What procedure will the doctors do to remove the fluid: **thoracocentesis; tube thoracostomy (chest tube)**
 - d. What additional procedures will the doctors do to ensure all the fluid is removed from the chest : **chest physiotherapy; incentive spirometry; chest tube**
2. A 12year old male was brought to the emergency with breathlessness. Doctors noticed he was breathing with a loud noise from the upper airway. Doctors on exams noticed patient had substances obstructing the upper airway. An ENT specialist was called to remove the item but in the process some of the debris from the item entered one of the bronchus into the lung causing the patient to have some sound in one of the lungs on auscultation with a stethoscope after the procedure.
 - a. What is the name of the sound patient made due to upper airway obstruction: **stridor**
 - b. Which of the lungs did the debris likely enter, and why? **right- because right major bronchus is vertical/straight**
 - c. What is the name of the sound heard on auscultation in the lungs due to obstruction in the airways in the lungs: **wheeze/wheezing**
3. A 90 year old man did an echocardiogram to check the heart. The doctor told him based on the scan report that he has problem with the blood vessels that supply blood from the heart to the lungs and the one that take blood away from lungs back to the heart.
 - a. **What** blood vessels supply blood to the lungs **from** the heart, and which one takes blood away from the lungs back to the heart: **pulmonary artery; pulmonary vein**
 - b. What part of the heart circulation does this vessels form part of: **pulmonary circulation**
 - c. What other form of circulation does the heart has that does not involve these blood vessels: **Systemic circulation**
 - d. What is the name of the blood vessel (artery) that supplies the heart itself: **coronary artery**

- e. Which part of the body corresponds to the point where the abdominal aorta bifurcates into the common iliac arteries: **umbilicus**
4. A 5 year old was booked to do lumbar puncture on account of suspected meningitis. Fluid was supposed to be taken with a needle from the vertebral canal.
 - a. Which major structure is located within the vertebral canal of the spine which can **be** damaged by the inserted needle: **spinal cord**
5. An unconscious 65 year old woman was seen at the emergency this morning. Relatives were attempting to feed her but noticed after 10 minutes of feeding that she was breathless
 - a. Which part of the digestive system did the food collect over the 10mins before it entered the airway and what are the parts of that particular part: **pharynx; oro-pharynx, naso-pharynx (also laryngopharynx)**
 - b. Why didn't the food enter the digestive tract in this unconscious patient: **an unconscious patient cannot swallow**
 - c. What name is given to the process whereby food and other substances meant for the digestive tract **enter** the airway: **aspiration**
 - d. In which lung is a pneumonia likely to develop in this patient and why: **right lung; the right major bronchus is more vertical/straight so food is likely to enter it first**

SECTION 2: (40MARKS)

ANATOMY BY SYSTEMS

1. Chest
 - a. Which major organs in the chest are protected by the rib cage: **heart, lungs**
 - b. Which bones form the rib cage: **ribs, sternum, thoracic vertebra**
 - c. How many lobes does the lungs have: **right- 2; left- 3**
 - d. At what point does the trachea bifurcate into the bronchus: **carina**
 - e. Where is the apex of the heart located: **5th intercostal, midclavicular- adult; 4th intercostal, midclavicular- child**
2. Abdomen
 - a. Which organ separates the chest from the abdomen and how thick is it: **diaphragm; is thin**
 - b. How many sphincters does the oesophagus have: **2 sphincters**
 - c. Which part of the intestine does the common bile duct and pancreatic duct open into the digestive tract: **2nd part of duodenum; ampulla of Vater**
 - d. Which part of the intestine ends in the appendix: **large intestine; caecum**
 - e. Excessive fluid collection in the abdomen is called what? **ascites**

3. Pelvis

- a. Name all the major bones that form the pelvis: **pubis, ilium, ischium; sacrum, coccyx]**
- b. Name all the bones that form the hip joint: **pubis, ilium, ischium, head of femur**
- c. When will the bladder become an abdominal organ: **when it is filled with urine/ distended**
- d. Is the rectum a pelvic or abdominal organ: **pelvic**
- e. Which pelvic bone do you sit on: **ischium**

4. Head and neck

- a. What are the 2 main groups of bones that form the skull: **cranium, facial bones**
- b. Name the bones that form the cranium: **Frontal, occipital, parietal, temporal**
- c. Which two bones in the vertebra allows you to turn your neck side to side and how do they operate together: **atlas and axis (the dens of axis goes into the spinal canal of atlas allowing for head rotation)**
- d. Why does the vertebra bodies increase in size as you move from head to toe: **to help bear the weight of the person**
- e. What is the main function of the vertebrae: **to protect spinal cord**

SECTION 3 (20MARKS)

CARDIAC PHYSIOLOGY

Elaborate on how blood circulates through the heart

Deoxygenated Blood enters the right atrium through the superior and inferior vena cava. The blood enters the right ventricle across the '*tricuspid valve'. Right ventricle pumps to lung through the pulmonary artery. Blood mixes with oxygen and oxygenated blood enters the left atrium through pulmonary veins. Blood moves from the left atrium to the left ventricle through the mitral valve. Left ventricle pumps to the body through the aorta to the rest of the body