**KENYA MEDICAL TRAINING COLLEGE – NYAMIRA**

**END OF FIRST SEMESTER EXAMINATION**

**SEPTEMBER 2013 KRCHN CLASS (PRE-SERVICE)**

**ANATOMY & PHYSIOLOGY SPECIAL EXAMINATION**

DATE: 16/10/2014 TIME: ..................

**INSTRUCTIONS**

1. Enter your examination number and question number on each page used.
2. ALL questions are compulsory.
3. For part 1 (MCQs), write the answer in the spaces provided on the answer booklet.
4. For Part 2 (SHORT ANSWER QUESTIONS), answer to each question MUST be done on a separate sheet of paper.
5. For Part 3 (LONG ANSWER QUESTIONS), answer to each question MUST be done on a separate sheet of paper.
6. Omission of and or wrong numbering of a question or part of the question will result in 10% deduction of the marks scored from the relevant part.
7. Do NOT use a pencil.
8. Mobile phones are NOT allowed in the examination hall.

**PART ONE: MCQS (MULTIPLE CHOICE QUESTIONS) ANATOMY & PHYSIOLOGY – 20 MARKS**

Q.1. The amount of air remaining in the air passages and alveoli at the end of quiet expiration is known as:

1. Functional residual capacity.
2. Residual volume.=is the volume of air remaining inthe lungs after forced expiration.
3. Vital capacity.Is the maximum amount of air which can be moved in and out of the lungs.
4. Tidal volume.Is the amount of air passing into and out of the lungs during each cycle of breathing.

Q.2. Which of the following provides the site for lymphocytes formation:

1. Plasma.
2. Liver.
3. Lymphocyte system.
4. Bone marrow.

Q.3. Nerves communicate to each other through a connection of:

1. Synaptic knobs.
2. Neuro transmitter.
3. Connector.
4. Association neurone.

Q.4. Which of the following terms do best describe ‘ the study of how the body systems work in order to main life’:

1. Anatomy.=Is the study of the structure the body
2. Feedback mechanism.
3. Physiology.
4. Homeostasis.

Q.5. Agranulocytes type of leukocytes include:

1. Eosinophils, basophils.
2. Monocytes, lymphocytes.
3. Monocytes, neutrophils.
4. Neutrophils, lymphocytes.

Q.6. The cells’ organelle, involved in the detoxification of some drugs, is known as:

1. Endoplasmic reticulum.
2. Mitochondrial.
3. Golgi apparatus.
4. Lysosomes.

Q.7. The elements are different from one another due to:

1. Electron configuration.
2. Isotopes.
3. Atomic weight.
4. Atomic number.

Q.8. Sacral plexus include:

1. Median nerve, axillary nerve, radial nerve.
2. Pudendal nerve, obturator nerve, ulnar nerve.
3. Sciatic nerve, pudendal nerve, common perontal nerve.
4. Deep branches, circumflex nerve, phrenic nerve.

**PART ONE: MCQS (MULTIPLE CHOICE QUESTIONS) ANATOMY & PHYSIOLOGY – 20 MARKS**

Q.9. A sensory nerve ending of the skin, which is sensitive to deep pressure is called:

1. Pacinian corpuscle.
2. Free nerve endings.
3. Cutaneous nerve.
4. Meissonier’s corpuscle.

Q.10. The type of the neuroglia that have phagocytic function is known as:

1. Atrocytes.
2. Microglia.
3. Epindymal cell.
4. Oligodendrocytes.

Q.11. Muscles of the back include:

1. Trapezius, iliacus, supinator.
2. Latisomus, dorsi, psoas, teres major.
3. Teres major, trapezius, occipito frontalis.
4. Quadrates lumborum, sacrospinalis, iliacus.

Q.12. The primary source of erythropoietin is:

1. Liver.
2. Lung.
3. Bone marrow.
4. Kidney.

Q.13. Anatomical term, which describe the ear is known as:

1. Buccal.
2. Calcaneal.
3. Otic.
4. Hallux.

Q.14. The tissue fluid that bathes all the cells of the body except the outer layers of the skins is referred to:

1. Intercellular fluid.
2. Plasma.
3. Intra cellular fluid.
4. Extra cellular fluid.

Q.15. Peptide hormones include:

1. Adrenaline, insulin, glucogon.
2. Adrenaline, glucocorticoid, thryroxine.
3. Thyroxine, glucogon, insulin.
4. Mineralocorticoid, steroids, noradrenaline.

Q.16. Which of the following bone cells are involved in the resorption of bone to maintain the optimum shape:

1. Chondrocytes.
2. Oesteoblast.
3. Oesteo clasts.
4. Oesteocytes.

**PART ONE: MCQS (MULTIPLE CHOICE QUESTIONS) ANATOMY & PHYSIOLOGY – 20 MARKS**

Q.17. The abduction movement at the synovial joints is best defined as:

1. Turning the sole of the foot inwards.
2. Movement round the long axis of above.
3. Straightening or bending backward.
4. Movement away from the midline of the body.

Q.18. The appendicular skeleton, include:

1. Parietal bones, nasal bones, coccyx, sternum.
2. Ribs, intervertebral foramina, tibia, metatarsal.
3. Clavicle, innominate bones, femur, metacarpal bones.
4. Vomer, sacrum, scapula, humerus.

Q.19. Accessory muscles, involved in forced expiration include:

1. Scalene muscles, sternocleido mastoid muscles.
2. Abdominal muscles, internal intercostals muscles.
3. Abdominal muscles, external intercostals muscles.
4. Sternocleidomastoid muscles, diaphragm.

Q.20. Appendix occupies a region of the abdominal:

1. Left lumbar region.
2. Left iliac fossa.
3. Right lumbar region.
4. Right iliac fossa.

**PART TWO: SHORT ANSWER QUESTIONS ANATOMY & PHYSIOLOGY – 40 MARKS**

Q.1. Outline two (2) complications of fractures. 2 marks

Q.2. Outline five (5) main functions of the skin.Protection aganaist microbes.-Insulin.-Fat storage. 5 marks

Q.3. Explain the selective reabsorption process involved in the urine formation. 8 marks

Q.4. In intestinal phase of gastric juice secretion there is slow down secretion of gastric

juice and a thorough mixture of bile.

1. Draw a well labelled diagram showing direction of the flow of bile from the

liver to the duodenum. 5 marks

1. State four (4) functions of the gastric juice. 4 marks

Q.5. Explain the process of internal respiration.

At the arteriole end the partial pressure of O2 is 100 while that in the tissuess is 44 and the partial presseure of CO2 in the arteriole end is 40 and in the tissues is 44 therefore O2 will diffuse into the tissuess due to its high pressure while CO2 will not

At the venuos end

8 marks

Q.6. Outline four (4) functions of the spleen. 4 marks

Q.7. Explain the coagulation process in haemostasis.Involves a positive feedback mechanism system.Blood clotting results in formation of insoluble threadlike mesh of fibrin which traps blood cells and much stronger than the platelet plug formation. In the final stages of this process prothrombin activator which acts on the plasma protein prothrombin converting it to thrombin.Thrombin then acts on another plasma protein fibrinogen and converts it into fibrin. 6 marks

**PART THREE: LONG ANSWER QUESTIONS (ESSAYS) ANATOMY & PHYSIOLOGY – 38 MARKS**

Q.1. The nervous system of neurones, which conduct impulses and are supported by unique connective tissue cells.

1. Describe the nerve impulse (action potential) 14 marks
2. Draw a well labelled diagram of the structure of myelinated neurone. 5 marks

Q.2. The ear is an organ of hearing and is also involved in balance.

1. Draw a well labelled diagram showing parts of the ear. 6 marks
2. Describe the physiology of hearing. 13 marks

The sound waves are collected and directed to auditory canal causing vibrations of the .. tympanic membrane.. The tympanic membrane only vibrates in the presence of air in the middle ear.the vibratins of the tympanic membrane are tranmitted and amplified by ossiscles .the stapes rock to and from in the oval window setting up the fluid in the perilymph of the scala vestibuli…some of these forces aretransmited along the length of vestibuli scala and tympani but most pressure is tranmitted into the cochlear duct which causes motion in the endolymh and stimulating the auditory receptors which generate auditory impulses which are transmitted into the hearing centre for perception and interpretation through the vestibucochlear nerve