FACULTY	**Health Sciences and Veterinary Medicine**		
DEPARTMENT	**Preclinical Department**		
SUBJECT	**Veterinary Structure and Function I (Paper 2, Physiology)**		
SUBJECT CODE	**V3581ES**		
DATE	**JUNE/JULY 2024**		
DURATION	**3 hours**	**MARKS**	**150**

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Internal Moderator: Dr P. Mbiri

External Moderator: Prof J.P Chamunorwa

This question paper consists of 2 pages, including this front page.

Instructions

Read the questions carefully Answer ALL questions
Write clearly and concisely

Second Opportunity Examination

ESSAYS (40 marks)

1. Discuss nutritionally-induced disorders of bone in domestic animals. (20)

2. Review the physiology of pain under the following headings; (20)
   a) Classification of nociceptors (4)
   b) Activation of nociceptors by inflammatory mediators (4)
   c) Transmission of pain signals from nociceptors to the spinal cord (4)
   d) Descending modulation of pain (4)
   e) Analgesia (4)

SHORT ANSWERS (80 marks)

1. Write briefly on the function of osteoclasts. (4)
2. Elaborate on the composition and function of inorganic bone matrix. (5)
3. Give an overview on the distribution and function of red bone marrow in post-natal life. (4)
4. Describe how endochondral ossification results in bone growth. (5)
5. Define bone remodelling. (2)
6. Why is the rate of fracture healing slower in older animals? (1)
7. State four characteristics of Upper Motor Neuron lesions. (4)
8. List four features of cardiac pacemaker cells. (4)
9. Name three types of calcium channels in smooth muscles. (3)
10. Describe the mechanism of smooth muscle contraction. (5)
11. Define isometric contraction and give its function. (2)
12. Name three organs that exhibit stretch relaxation of smooth muscle. (3)
13. Write briefly on the mechanism of toxicity of anatoxin-a on skeletal muscle. (3)
14. Give two muscle types that contract as a syncytium. (2)
15. Name the graded potentials (5)
16. Give two physiological parameters that are controlled by the hypothalamus. (2)
17. Name the receptors in effectors of the sympathetic nervous system. (5)
18. Indicate the location and function of the Primary Sensory Cortex. (2)
19. List the amino acid neurotransmitters, giving their roles (8)
20. Describe the action of curare compounds on skeletal muscle using named examples. (6)
21. Name five areas of the brain that do not have a blood brain barrier. (5)

PRACTICAL (30 marks)

1. Describe electromyography under the following headings;
   a) Action potential generation in skeletal muscle (6)
   b) Principles of electromyography (6)
   c) Recording methodology (6)
   d) Typical electromyogram at different levels of stimulation (6)
   e) Neuromuscular disorders that can be diagnosed by electromyography (6)

END OF QUESTION PAPER