MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACEUTICAL SCIENCE, BACHELOR OF SCIENCE IN MEDICAL BIOTECHNOLOGY AND BACHELOR OF SCIENCE IN MEDICAL LABORATORY SCIENCE WITH INFORMATION TECHNOLOGY

(MAIN CAMPUS)

PMT 212: HUMAN PHYSIOLOGY

Date: 2nd December, 2013 *Time: 11.00 a.m. - 1.00 p.m.*

PMT 212: HUMAN PHYSIOLOGY

BSC MEDICAL BIOTECHNOLOGY, BSC PHARMACEUTICAL SCIENCE AND BSC MEDICAL LABORATORY SCIENCE

SECTION A: Answer all questions

1. Describe 4 attributes of the neuron by which it is specialized to receive and transmit electrical impulse encoded information (4 MARKS)
2. Outline the events that constitute the mechanism by which information is transmitted across a chemical synapse (4 MARKS)
3. Mention four components of the reflex arc (4 MARKS)
4. Outline four differences between hydrophilic and lipophilic hormones (4 MARKS)
5. List all tropic and non-tropic hypothalamic hormones and their functions (4 MARKS)
6. Outline the features of the juxtaglomerular apparatus and their functions (4 MARKS)
7. List four factors that influence the glomerular filtration rate (4 MARKS)
8. Outline the structural arrangement of neurons within the retina and the nature of electrical responses that are produced by each type? (4 MARKS)
9. Describe any four information processing neuronal networks within the central nervous system (4 MARKS)
10. (a)List any four hormonal axes emanating from the hypothalamus

    (b) Explain the term hierarchical hormonal negative feed- back mechanism (4 MARKS)

SECTION B

Answer ANY TWO questions. Question 1 is compulsory

1. The speed of a saloon car travelling from Kisumu to Maseno Township in a rainy morning kept fluctuating due the state of the road and the heavy traffic. In a clear section of the road the vehicle kept a constant speed before experiencing a tyre bust, veering off the road and spinning then halting.

    a) What is sensory transduction?
    b) Discuss the structural features and mechanisms by which the ears as a specialized sensory organ transduced the various motion experiences during this ill –fated journey? (15 marks)
2. Discuss the role of the kidneys in regulating extracellular fluid volume and osmolarity? (15 marks)
3. Discuss the various stages of neuronal action potential generation and propagation? (15 marks)