University of Buea

Faculty of Sciences

Department of Plant & Animal Sciences

Z00 406: Continuous Assessment (2008-2009)

Tuesday 28th April 2009 (9-10.30 am)

(COMPARATIVE VERTEBRATE PHYSIOLOGY II)

Course Website: www.geocities.com/salahmartin/Z00406

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Instructions: *Answer all the Questions: Marks Allocations are indicated against each question*

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(1) (a) Describe excitation-contraction coupling in smooth muscles (5 Marks)
(b) Using a diagram only, indicate the energy sources for muscle contraction (4 Marks).

(2) With the aid of diagrams, distinguish between:
(a) Excitatory postsynaptic potential (EPSP) and Inhibitory Postsynaptic potential (IPSP) (3 Marks).
(b) Spatial and Partial summation (3 Marks).

(3) Using diagrams of the detail structure of an excitatory cell membrane only with the corresponding electrical circuit equivalence, show how the following membrane potentials are generated.
(a) Resting Membrane Potential (4 Marks)
(b) Action Potential (4 Marks).

(4) Using the membrane structure and the role of integrated proteins as an example, describe the following ion channels
(a) Voltage-gated Channels (2 Marks)
(b) Ligand –gated channels (2 Marks).

(5) (a) State Nernst Equation (1 Marks)
(b) If the intracellular [Na^+] is 15 mM and that of extracellular [Na^+] is 150 mM, What is the equilibrium potential for Na^+? (2 Marks)

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Total Marks (30)

Good Luck

Dr. Salah A. Martin