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THE OPEN UNIVERSITY OF SRI LANKA
B. Sc. DEGREE PROGRAMME
FINAL EXAMINATION -2007/2008
COURSE CODE 2264-
ANIMAL FORM AND FUNCTION – PAPER II
ZOOLOGY – LEVEL 4
DURATION – TWO HOURS

Index Number :-----

DATE : 16th JUNE 2007

TIME : 1.30 P.M – 4.30 P.M.

Instructions

- This question paper has two parts, Part A and Part B.
- Please note that **question number 1 in Part A is compulsory.**
- Answers **question number 1 in Part A** and **any four** questions from **Part B.**
- Answers to question number 1 (structured essay) must be written within the space provided in the question paper.
- Please hand over the Part A of the question paper along with the rest of the answer scripts.

INDEX NUMBER:-----

Question number 1 is compulsory

PART A

1.1. Figure 1 shows the structures involved in temperature regulation in a mammal.

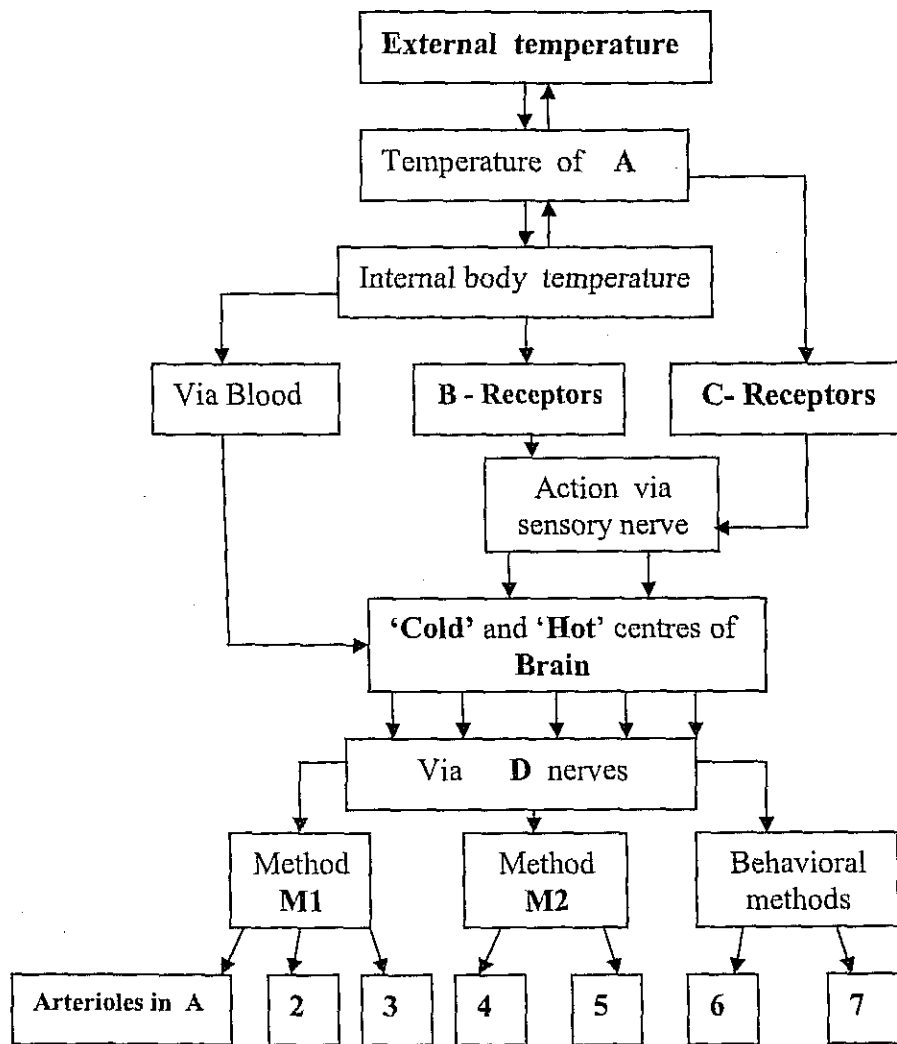


Figure 1

1.1.a. Define the term homeostasis

1.1. b. Describe the term “poikilothermic animals”

1.1. c. Name the structures **A** and two types of **receptors** involved in the mechanism.

A-----

B- Receptors ----- **C -Receptors**-----

1.1. d. Name the type of nerve **D**.

1.1. e. Write the two methods **M 1** and **M2** that control the body temperature.

M1 -----

M2-----

1.1. f. Name the structures labeled 2, 3, 4 and 5.

2.----- 3.-----

4.----- 5.-----

1.1. g. Describe briefly the behavioral methods shown by animals as indicated by 6 and 7 in **Figure 1**.

1.1.h. Write three types of adaptations shown by animals living in cold temperatures.

1.-----

2.-----

3.-----

1.1.i. Describe the effect of high temperature on the metabolic activities in body cells.

1.2. Figure 2 shows the changes of voltage of a neuron.

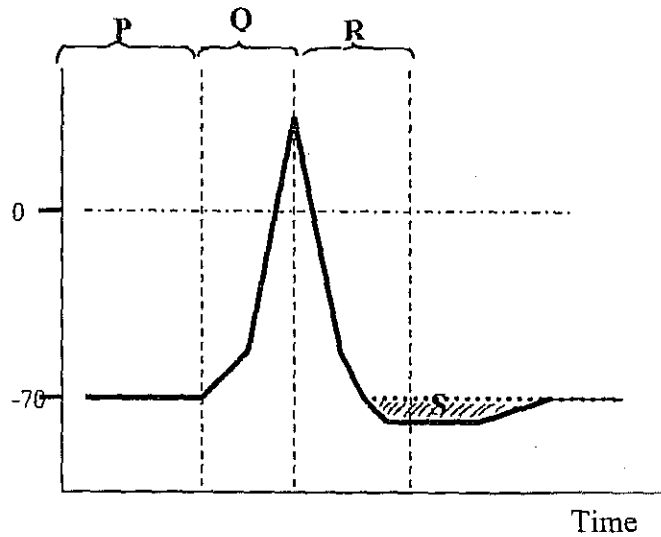


Figure 2

1.2.1. What is meant by resting membrane potential.

1.2.2. Mark the resting potential on the graph with letter A

1.2.3. Name P, Q and R

P _____

Q _____

R _____

1.2.4. Label the **spike potential** on **Figure 2** and **describe** how the potential changes during spike potential.

1.2.5. What are the ions that are involved to maintain the charges at the time **P** ?

1.2.6. What are the ions that enter into the axon during time period **Q** ?

1.2.7. Describe the movement of ions during the period of **R**.

1.2.8. The membrane potential has decreased below -70mV at **S** for certain time period.

Name the period and **describe** how it is decreased below -70 mV .

Name of the period -----

Description-----

1.3. The nervous system has millions of neurons. These neurons arrange in different ways and make circuits.

1.3.a. Name two types of nerve circuit present in nervous system.

- 1. _____
- 2. _____

1.3.b. Draw a diagram to show the arrangement of neurons in **one of the above** circuits mentioned in 1.3.a

1.3.c. What are the types of transmission of impulses across a synapse ?

1.3.d. Write the exact mechanisms for following transmitters in synapses

i. Excitatory transmitters

ii Inhibitory transmitters

1.3.e Name three neurotransmitter substances used in synapses.

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PART B

Answer any four (4) questions

2. Describe briefly how a glucose molecule is oxidized during synthesis of ATP in the cytoplasm of a living animal cell.
3. Describe the cardiac cycle of human heart and its conducting system in operation.
4. Describe the changes in different hormone levels, during the menstrual cycle of a non-pregnant women and discuss the corresponding physical changes of the uterus.
5. Briefly explain the renal mechanisms of acid base balance in human body.
6.
 - i. Describe the structure of endoplasmic reticulum, Golgi apparatus and Lysosomes.
 - ii. Explain the functional relationship that exists among these organelles.
7. Write short notes on any two of the following
 - a.. Cellulose digestion in ruminants and non ruminants
 - b. Immune response
 - c. Active transport processes
