

Name's of student.....
School Name.....

**BIOLOGY
PAPER II
P530/2
SENIOR SIX
JULY-AUGUST.**



**COMPREHENSIVE BIOLOGY TRANSFORMATION INITIATIVE.
UACE
RESOURCEFUL EXAMINATION
S.6 CANDIDATES-2023
PAPER 2
2 HOURS AND 30 MINUTES**

INSTRUCTIONS TO THE CANDIDATES:

This paper consists of section A and B.

Answer question one in section A plus 3 questions in section B

Candidates are advised to read questions carefully, organize their answers and present them precisely and logically, illustrating with well labelled diagram wherever necessary.

Adapt to the 21st century pedagogy.

SECTION A (40 MARKS)

N.B QUESTION ONE IS COMPULSORY TO ALL CANDIDATES.

1. Walruses are marine mammals that live in arctic polar region. They have bulky bodies with four flippers, but well adapted for longer submersions in water during a dive.

Fig 1.O.A. below shows changes in the oxygen and lactate concentration in blood of the walrus.

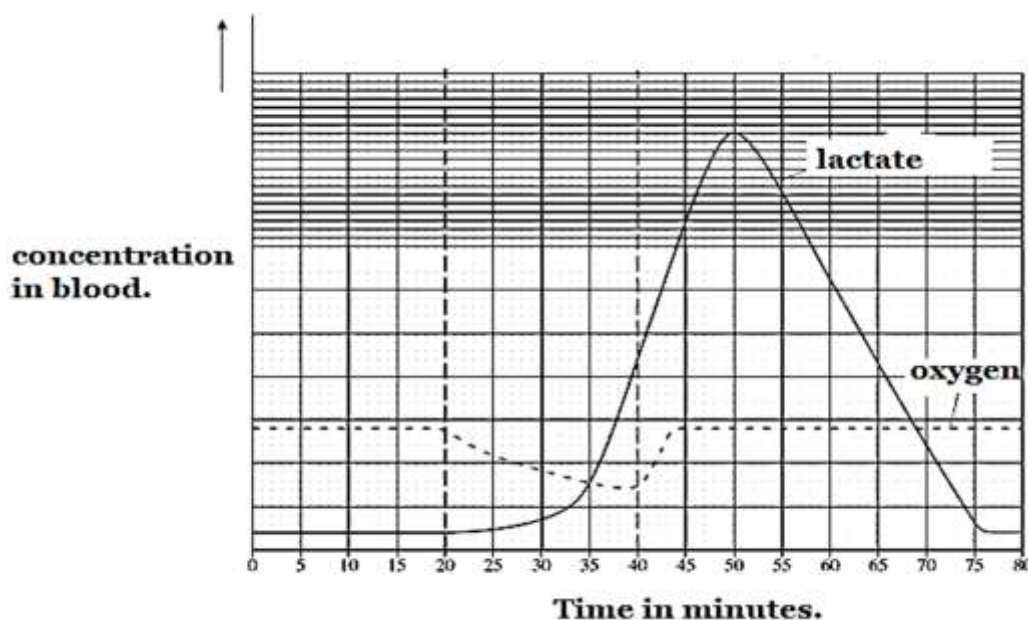


Fig. 1.oA.

Fig. 2.o B. shows the changes the heart rate of the walrus during the dive. Study the figures and answers questions below.

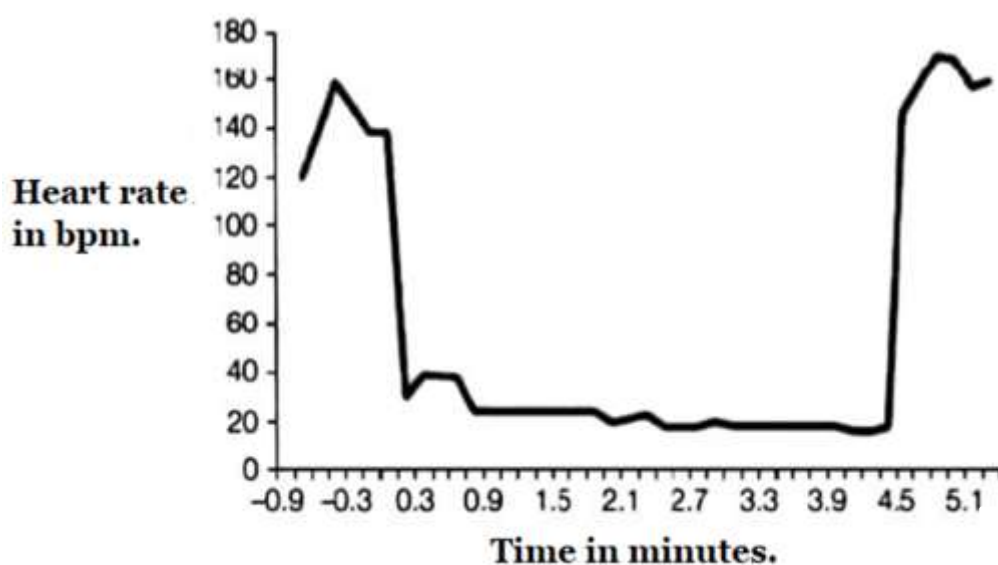


Fig. 2.o B

a) From Fig. 1.0 A. Compare the concentration of lactate and oxygen in the blood of the Walrus. (05 marks)

b) Describe the changes in the following measurable variables in the Walrus.

(i) Oxygen concentration. (05 marks)

(ii) Lactate concentration. (05 marks)

c) Explain the changes above in b(i) and (ii). (10 marks)

d) From Fig. 2.0 B. Explain the changes in the heart rate during the dive.

(10 marks)

e) From Fig. 1.0 A.

(i) Calculate how long it took from the end of the dive for the walrus to recover fully. (02 marks)

(ii) During the dive, blood flow to the diaphragm is reduced. Suggest the maintenance of some blood flow to the diaphragm.

(03 marks)

(iii) Walruses have a higher tidal volume. Explain this observation.

(02 marks)

SECTION B (60 MARKS)

2a) Describe how the

(i) Phospholipids form the hydrophobic core.

(05 marks)

(ii) Cholesterols give membrane stability.

(05 marks)

b) Explain the factors affecting the following.

(i) Active transport.

(05 marks)

(ii) Facilitated diffusion.

(05 marks)

3a) Explain why genetic variations caused by gene reshuffling have a little role in the evolutionary process. (10 marks)

b) Explain how the size of Mendelian populations can influence the evolutionary path of organisms. (10 marks)

4a) Describe features of a sensory system. (10 marks)

b) Compare the behaviour of rod cells in light and darkness. (10 marks)

5a)(i) Explain how motor units contribute to the behaviour of the whole muscle. (10 marks)

(ii) Describe the properties of the skeletal muscles. (10 marks)

6 a) Describe the role of the phytochromes in flowering. (10 marks)

b) Explain the influence of light on the following.

(i) Migration of birds. (05 marks)

(ii) Apical dominance. (05 marks)

