Name's of student.....

School Name.....

BIOLOGY PAPER II
P530/2
SENIOR SIX
JUNE-JULY.

COMPREHENSIVE BIOLOGY TRANSFORMATION INITIATIVE.
UGANDA ADVANCED CERTIFICATE OF EDUCATION.
(UACE)

S.6 CANDIDATES- 2024

PAPER 2

RESOURCEFUL EXAMINATION

2 HOURS AND 30 MINUTES

INSTRUCTIONS TO THE CANDIDATES:

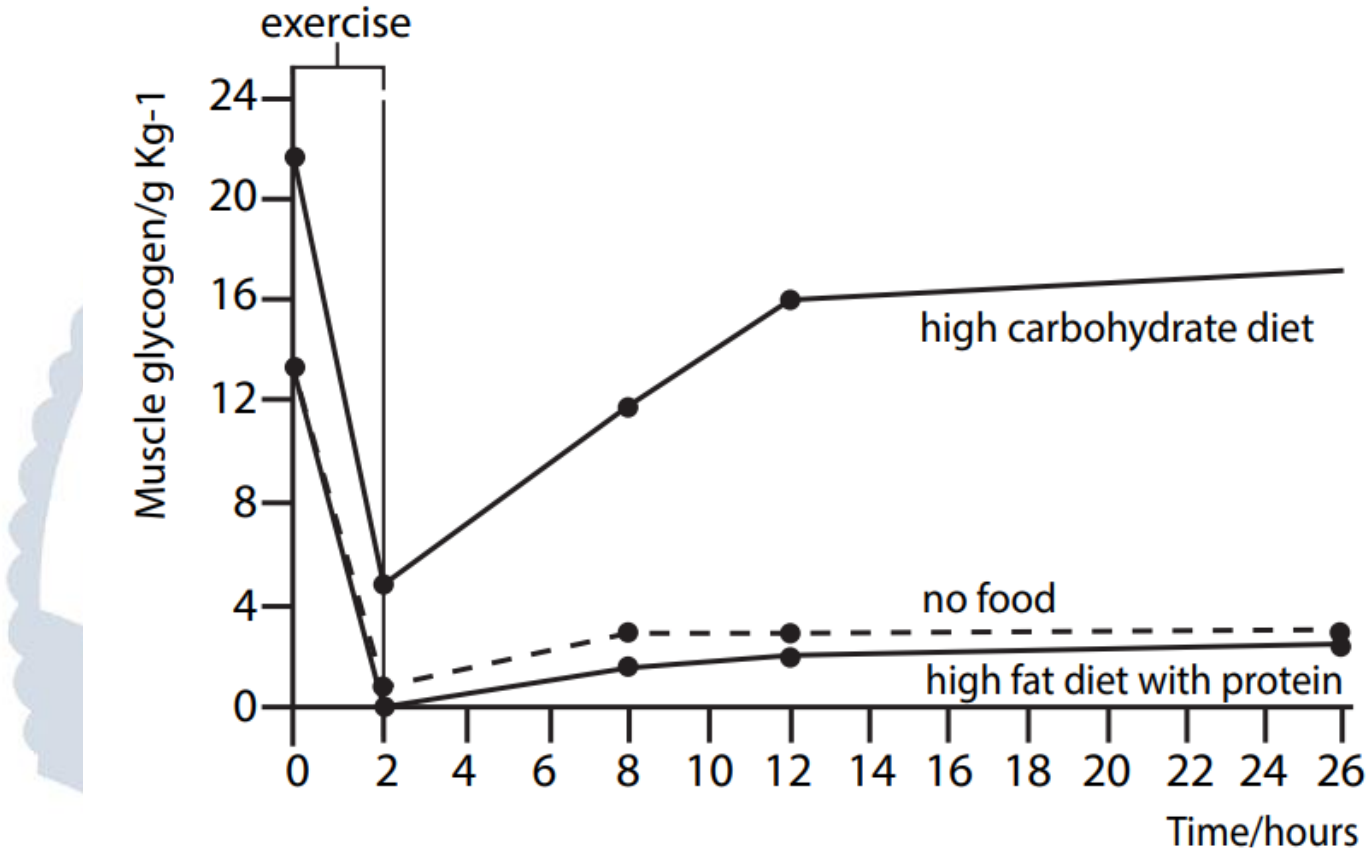
This paper consists of section A and B.

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.

N.B- <u>QUESTION ONE IS COMPULSORY TO ALL CANDIDATES</u>.

1. An **Investigation** was carried **out to study the rate of usage of Muscle glycogen during exercise and replenishment after the exercise (Recovery). Before** and **after** the exercise, **two subjects** were fed on **High Carbohydrate diet** and **High Fat diet with protein** and **one subject was not Fed.** The results are shown on the graph. Study it carefully and **provide suitable answers**.



(a) **Compare** the **Muscle glycogen** for **High Carbohydrate diet** and **High fat diet with protein during the** investigations. **(07 marks)**

(b) **Describe** the changes in the **Muscle glycogen** during the investigations for,

(i) High carbohydrate diet. **(03 marks)**

(ii) No Food. **(03 marks)**

(iii) High fat diet with protein. **(03 marks)**

(c) **Give** an account for **Muscle glycogen during recovery** following

(i) High carbohydrate diet. **(07 marks)**

(ii) No food. **(05 marks)**

(d) **Explain** the **differences** in the change of **Muscle glycogen** for the curve of **High Carbohydrate diet** and **no Food** during recovery period**.**

(05 marks)

(e) **(i) Calculate** the average change in **mass of glycogen** during the first **2 minutes** of exercise for the three athletes.

(03 marks)

(ii) Suggest why **Muscle glycogen** decreases during the exercise**.** **(02 marks)**

(iii) What conclusion can you draw from the experiment**?**

(02marks)

SECTION B (60 MARKS)

Answer three Questions from this section.

2. (a) Why is **inflammation** a useful body **defensive** mechanism**?**

(10 marks)

b) Explain how the Following **Factors** regulate the **heart rate.**

(i) Movement of the Limbs. **(05 marks)**

(ii) Secretion of adrenaline. **(05 marks)**

3. (a) Describe how the **Sodium Ions** enter the **axon** during the passage of the **action potential.** **(07 marks)**

(b)(i) How does **thyroxine** control **metabolic rate** through **the negative Feedback loop.** **(07 marks)**

(ii) How do **hormones** affect the **target cell(s)?** **(06 marks)**

4. **(a) Explain** why the **Loop of Henle** is described as **hair pin counter-current Multiplier system.** **(05 marks)**

   b(i) Explain the **role** of the **hypothalamus** as a **thermostat** in the body**.** **(10 marks)**

   (ii) Explain how the **ectothermic behaviour** of the **camel** allows its survival in **hot areas**. **(05 marks)**

5. **(a) Describe** the **Physical** and **chemical processes** by which **solar energy** is converted into the **chemical energy of ATP**. **(10 marks)**

   (b) Explain the **adaptations** of **plants** growing in **salt marshes to** their habitat**.** **(10 marks)**

6. **(a)(i) What** is meant by **a Sere?** **(03 marks)**

   (ii) Describe how **succession occurs** when the **spores or seeds land** on **a dry rocky surface.** **(07 marks)**

   (b) (i) Explain the **Origins** of the **green-house gases.** **(05 marks)**

   (ii) Describe how the **green-house effect** occurs. **(05 marks)**