

P530/2
BIOLOGY
(Theory)
Paper 2
2½ hrs



RWENZORI REGION SESEMAT AND ASSHU (RRSA)

MOCK EXAMINATIONS

UGANDA ADVANCED CERTIFICATE OF EDUCATION

BIOLOGY

(Theory)

Paper 2

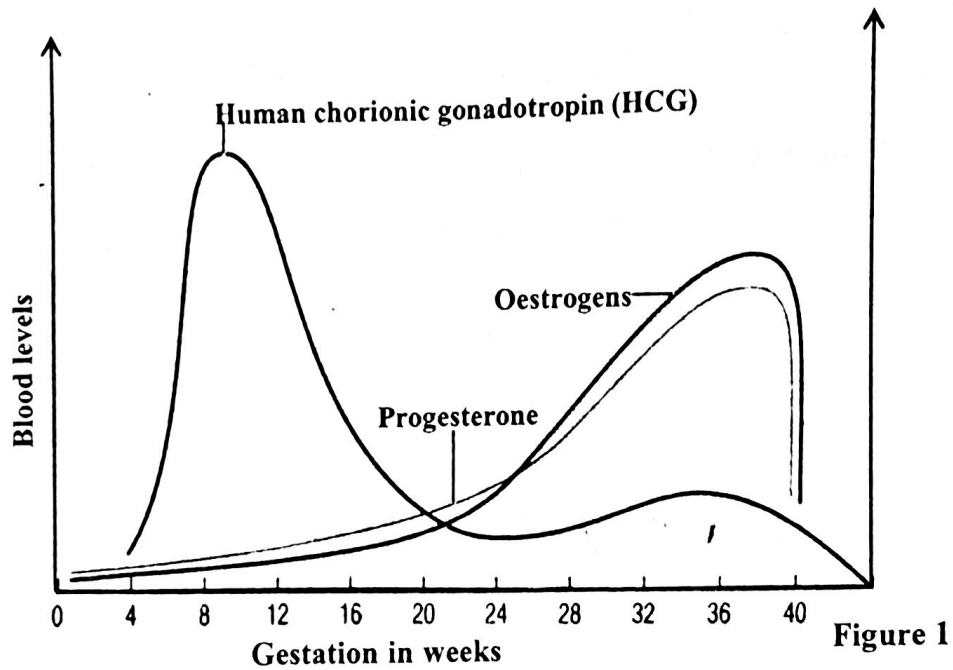
2 Hours 30 minutes

INSTRUCTIONS:

- ❖ *This paper consists two sections A and B.*
- ❖ *Answer question **one** in section A plus any **three** questions from section B. You are strongly advised to read the questions carefully, prepare your answers and present them precisely and logically, illustrating with well labelled diagrams where necessary.*
- ❖ *Additional question(s) answered will not be marked.*

SECTION A (40 MARKS)

1. The relative blood levels of human chorionic gonadotrophin, oestrogen and progesterone in a woman who had not yet conceived and later conceived was monitored for 40 weeks. The results are reflected in **figure 1** below. Study **figure 1** and answer the questions that follow.



From **figure 1**:

- (a) Compare the changes in blood levels of progesterone and oestrogen
(07 marks)
- (b) Explain the changes in blood levels of:
- (i) Oestrogen (08 marks)
 - (ii) Progesterone (08 marks)
- (c) Explain the relationship that exists between blood levels of human chorionic gonadotrophin, and blood levels of progesterone and oestrogen
(08 marks)
- (d) Explain why a hormonal test may be positive at one time during gestation period and later negative
(06 marks)

- (e) Suggest any **three** commercial applications of mammalian hormones

(03 marks)

SECTION B (60 MARKS)

2. (a) Compare **oxidative phosphorylation** with **photophosphorylation** (08 marks)
- (b) Describe the fate of the different respiratory substrates in respiration (12 marks)
3. (a) Compare counter current flow mechanisms with counter current multiplier mechanisms (06 marks)
- (b) Describe the mechanism of osmoregulation in fish (14 marks)
4. Describe how:
- (a) Enzymes participate in chemical reactions (13 marks)
- (b) Control of enzyme action is achieved inside cells (07 marks)
5. (a) (i) What are the consequences of overcrowding in populations? (06 marks)
- (ii) Describe how population sizes are regulated by negative feedback controls in natural ecosystems (08 marks)
- (b) Which factors influence the choice of the method used in estimation of population size? (06 marks)
6. (a) Describe the mechanism of synaptic transmission (08 marks)
- (b) What properties of synapses ensure their efficient functioning? (12 marks)

END