

LIFE SCIENCES: PAPER II

EXAMINATION NUMBER

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ANSWER BOOKLET

There are (iv) pages in this Answer Booklet.

QUESTION 1

Answer this question in the spaces provided. Place this Answer Booklet inside the Answer Book in which you answer the rest of the examination paper.

- 1.1 Select the term in Column B that best matches a description related to hormones in the Column A. Write the letter of the matching term in the corresponding space provided between the brackets. Each letter may only be used once.

Column A

- [] Development of male secondary sexual characteristics
- [] Endocrine glands found in the pancreas
- [] Lowers the blood glucose level
- [] Produces a hormone that increases the permeability of the walls of the nephron
- [] Regulates the metabolic rate
- [] Increases the flow of blood to the muscles and increases the heart rate
- [] Stimulates the development of the sperm in the testes
- [] High levels of this hormone cause ovulation
- [] Stimulates the production of thyroxin
- [] Over secretion of this hormone in adults causes enlarged bones of the face and hands

Column B

- A Hypothalamus
- B Growth Hormone
- C LH
- D Glucagon
- E FSH
- F TSH
- G Adrenalin
- H Islets of Langerhans
- I Oestrogen
- J Testosterone
- K Insulin
- L Thyroxin

- 1.2 Read the source material below concerning elephant culling. Answer the question that follows.

Herds of elephants kept in fenced national parks are monitored to ensure there are enough resources for all the animals in the elephant population. If the elephants use more resources than are available they must be culled or removed to another park. If this is not done the intraspecific competition between the elephants increases greatly. Elephants are very large animals. This factor together with their social organisation, results in very few successful kills by predators. The predators are natural culling agents amongst other herbivores.

Decide if each of the following statements is **True** or **False** and tick (✓) the appropriate box.

If the statement is **False**, write the correct word in the correction box to replace the word underlined in the statement.

Statement	True	False	Correction
Predation is a <u>density-dependant</u> factor which affects population size.			
Intraspecific competition <u>increases</u> the size of a population.			
In an area, grass, giraffe and acacia trees form a <u>population</u> .			

(5)

- 1.3 Four multiple choice questions are given below. Choose the most correct alternative in each question and write the letter in the space provided in the table.

Question	1.3.1	1.3.2	1.3.3	1.3.4
Answer				

- 1.3.1 The ecological niche of an animal is

- A the habitat of the animal.
- B the number of animals of a species that the area can support.
- C all the ways the animal fits into the habitat.
- D the specific place in the community where the animal lives.

(1)

1.3.2 Which of the following comparisons of stages in plant succession is correct?

	Early Stage	Late Stage
A	Soil is deep	Soil is shallow
B	Low biomass	High biomass
C	Complex food webs	Simple food webs
D	High species diversity	Low species diversity

(2)

1.3.3 Which of the following will cause a decrease in population size?

- (i) emigration
- (ii) predation
- (iii) birth
- (iv) immigration
- (v) death

- A (i) and (ii) only
- B (ii), (iii) and (iv)
- C (i), (ii) and (v)
- D (iii) and (iv)

(2)

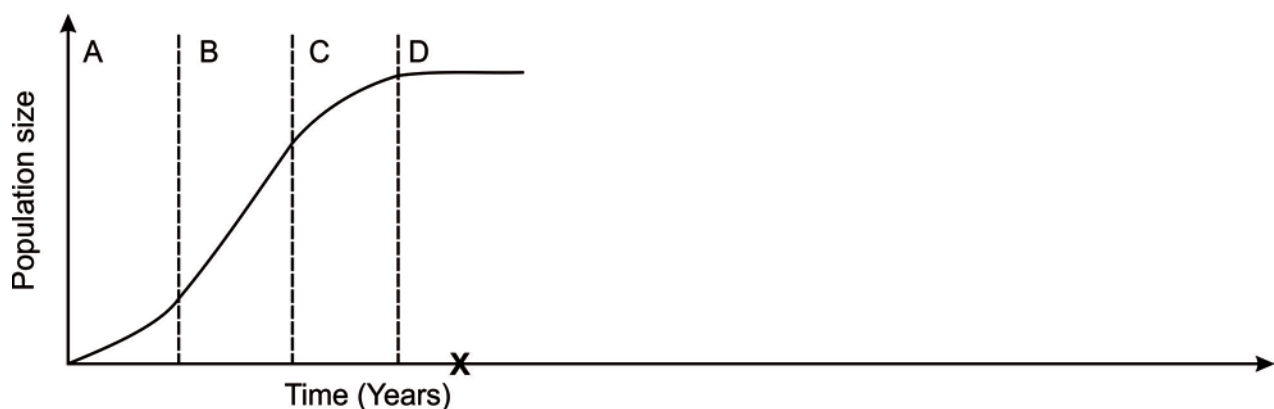
1.3.4 20 frogs were caught in the area around a large pond. They were tagged with plastic rings on one leg. Ten days later 8 frogs were caught again of which 4 had leg tags.

What is the estimated size of the frog population?

- A 40
- B 2
- C 10
- D 36

(2)

1.4 The following graph shows the population growth of a herd of springbuck over a period of time.



1.4.1 Draw and label a line onto the graph above that represents the carrying capacity of the environment.

(2)

1.4.2 Define 'carrying capacity'.

(2)

1.4.3 Give ONE reason why the initial phase A starts slowly.

(1)

1.4.4 At which phase (A, B, C or D) does

environmental resistance start having an effect? _____

birth rate equal death rate? _____

birth rate greatly exceeds death rate? _____ (3)

1.4.5 Name and explain ONE environmental factor which may cause the growth of the springbuck population to decrease.

(2)

1.4.6 If a pride of lions moved into the same area as the springbuck in the year **X** on the graph:

(a) Continue drawing the expected graph line of the springbuck population showing the effect of the lions in the area over the time span of the graph above. (2)

(b) Draw in the expected line on the graph above to show the lion population over the time span. (3)

(c) What type of relationship exists between the springbuck and the lions?

(1)

(d) Will the presence of the lions affect the carrying capacity of the area? Justify your answer.

(2)
[40]