



**LIFE SCIENCES: PAPER II**

**EXAMINATION NUMBER**

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**ANSWER BOOKLET**

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**There are (v) pages in this 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 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**

- [ ] A method used to estimate plant population density
- [ ] The set of specific conditions in an area necessary for survival of a particular species
- [ ] A method used to estimate a bird population size
- [ ] The sum of the factors inhibiting a population's growth in a habitat
- [ ] A group of different species inhabiting an area
- [ ] The number of individuals in a population
- [ ] Linked food chains with many energy pathways
- [ ] The maximum number of individuals that can be supported by the environment at a given time
- [ ] Permanent movement of individuals out of a habitat
- [ ] A gradual natural replacement of one animal and plant community by another over time

**Column B**

- A Population size
- B Immigration
- C Carrying capacity
- D Ecological succession
- E Quadrat sampling
- F Food web
- G Ecological niche
- H Population density
- I Emigration
- J Environmental resistance
- K Mark-recapture
- L Community

1.2 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	1.2.1	1.2.2	1.2.3	1.2.4
Answer				

1.2.1 Oxygen and nutrients are carried directly to the foetus by the

- A placenta
  - B amniotic fluid
  - C umbilical cord
  - D mother’s blood
- (1)

1.2.2 As the human foetus develops, the amniotic fluid

- A is a reserve food supply
  - B lubricates the urethra during birth
  - C gives rise to the placenta
  - D supports the foetus so it can move freely
- (1)

1.2.3 Foetal Alcohol Syndrome (FAS) occurs in babies due to

- A the mother consuming alcohol during pregnancy
  - B the father being an alcoholic
  - C a sexually transmitted disease
  - D a genetic defect
- (1)

1.2.4 Which of the following pairs of statements of the stages in labour in humans is correct?

	Early Stage	Late Stage
A	Progesterone levels high	Progesterone levels low
B	Oxytocin levels high	Baby's head pushed into the vagina
C	Umbilical cord is tied off and cut	Foetus pushed out of the uterus
D	Uterus wall contracts and relaxes	Mammary glands release milk

(2)

1.3 Read the following information and then answer the question that follows.

Different animal species perform specific rituals that bring a mature male and female together so that mating occurs.

Stickleback fish are an example of a fish species that have behaviours that attract mates. The male develops a red chest and builds an underwater nest. He then entices a female stickleback to the nest by showing her his red chest. The female enters the nest and lays thousands of eggs. The male then releases his sperm over the eggs to fertilise them.

The male stickleback fish looks after the naked eggs and uses his red chest to warn off other fish that could eat the developing eggs.

The table below consists of a statement in the first column and two items (numbered 1 and 2) in the second column concerning stickleback fish.

**Decide which item/s relate to the statement.**

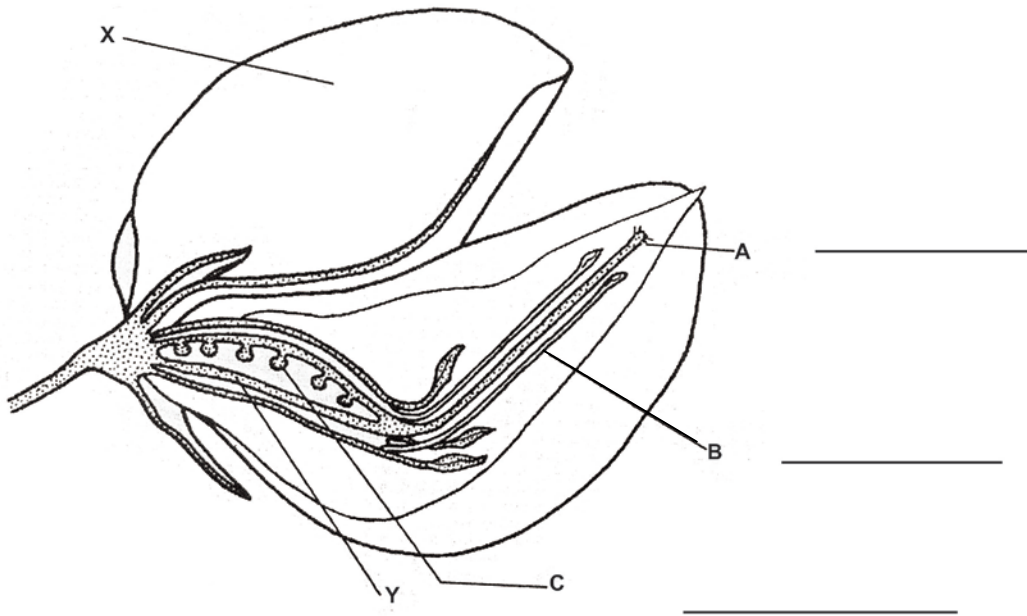
Write down the letter of your choice, in the space provided, making use of the following codes:

- A only item 1 is related to the statement
- B only item 2 is related to the statement
- C both item 1 and 2 are related to the statement
- D neither item 1 or 2 relates to the statement

Statement	Items	Answer
The stickleback fish reproduces successfully	1. Courtship 2. Parent care	
Once mating takes place there is ...	1. Internal fertilisation 2. External fertilisation	
In the stickleback the development of the embryo is ...	1. Viviparous 2. Ovoviviparous	
The fish embryos develop in an egg without a shell	1. False 2. True	
The reproductive strategy in terms of the survival of this fish	1. r-strategy 2. K-strategy	

(5)

1.4 The following diagram shows the longitudinal section of a flower.



1.4.1 Complete the labels A, B, C on the diagram. (3)

1.4.2 Pollination is \_\_\_\_\_  
 \_\_\_\_\_ (3)

1.4.3 State what happens to X and Y after fertilisation.

X \_\_\_\_\_

Y \_\_\_\_\_ (2)

1.4.4 Give the correct biological term for each of the following descriptions. Write the term on the line provided.

(a) formation of a new organism from one parent \_\_\_\_\_  
 \_\_\_\_\_

(b) a structure that contains the embryo after fertilisation in flowering plants \_\_\_\_\_

(c) crop plants with more than two complete sets of chromosomes \_\_\_\_\_ (3)

1.4.5 Genetic engineering is used to improve crops. In South Africa there have been GM (Genetically Modified) crops since 1997. In spite of strict regulations concerning the production of these crops, many people are not in favour of GM crops.

An investigation was done to establish the attitudes and beliefs of Grade 12 learners towards GM crops. The results are shown in the table below.

**The results of an investigation** \_\_\_\_\_  
 \_\_\_\_\_

Question asked	Number of learners	
	YES	NO
Do you think GM crops are a solution to the world food shortage?	35	25

- (a) Complete the heading for the table in the space above the table. (1)
- (b) How many people participated in the investigation? \_\_\_\_\_ (1)
- (c) Write another relevant question that could have been asked in the survey.  
 \_\_\_\_\_  
 \_\_\_\_\_ (3)
- (d) Write a conclusion for this investigation.  
 \_\_\_\_\_ (2)
- (e) Do you support GM crops? Support your answer with ONE clearly stated biological reason other than the one which formed part of the original survey.  
 \_\_\_\_\_  
 \_\_\_\_\_ (2)

**[40]**