ZIMBABWE SCHOOL EXAMINATIONS COUNCIL

General Certificate of Education Ordinary Level

ENGLISH LANGUAGE 4005/2

PAPER 2

JUNE 2023 SESSION **2 hours**

Additional materials:
Answer paper

Allow candidates 5 minutes to count pages before the examination.

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces provided on the answer paper / booklet.

Read the provided passage very carefully before you attempt any question.
Check that the booklet has all pages and ask the invigilator for a replacement if there are duplicate or missing pages.

Answer **all** questions.
Write your answers on the separate answer paper provided using black or **blue** pens.
Leave a space of one line between your answers to each part of a question e.g. between 1(a) and (b). Leave a space of at least three lines after your completed answer to each whole question.

Answer question 3 on the grid answer sheet provided in this question paper.
Tear off the grid answer sheet for question 3 from this question paper and attach it to the other answer sheets.
If you use more than one sheet of paper, fasten the sheets together.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [ ] at the end of each question or part question.
You are advised to spend **1 hour 30 minutes** on Section A and **30 minutes** on Section B.
Mistakes in spelling, punctuation and grammar may be penalised in any part of the paper.

This question paper consists of 10 printed pages and 2 blank pages.

SECTION A (40 MARKS)

Read the following passage very carefully before you attempt any questions.

Answer **all** the questions in the spaces provided on the question paper.

Mistakes in spelling, punctuation and grammar may be penalised in any part of the paper.

KEEPING EGGS WARM

(For cold-blooded reptiles, and some birds too, maintaining incubation temperature calls for special measures.)

1 The American alligator, (a relative of the American crocodile), like all reptiles, is cold-blooded, so the female is poorly equipped to incubate her eggs. Instead, she builds an incubator using her immensely strong tail to **scrape together** a mound of vegetation in which she buries her eggs. Just like a garden compost heap, the pile begins to decay and warms up. As it does so, the temperature rises to the ideal thirty-seven degrees Celcius.

2 This is a useful solution to the problem of incubation. However, it is not entirely satisfactory. The temperature within the heap varies by only a few degrees, but even a small change can have a major **impact** on the size and **vitality** of the new-born. Eggs that incubate at lower than ideal temperatures will take longer to develop, and more of the food content will be used up by the embryo in keeping itself alive. When they therefore hatch, the young offspring are smaller than those incubated at the ideal temperature.

3 In a shrewd evolutionary development, the alligator has adapted to this unpredictability. A small female produces proportionately fewer eggs than a large one, but at least she will produce some. However, for males, size is crucial. Large males win most females and the **ferocious** fights that happen at the start of the mating season. Small males may never mate at all.

4 To ensure her young ones get the best chance to breed successfully and so pass on her genes, a mother alligator needs her large offspring to be male and her smaller offspring to be female. In fact, sex is determined by the temperature at which an egg is incubated. Eggs that develop in ideal incubation conditions produce large males, but those that are inadvertently kept cooler will turn out smaller females. For every male produced, there are five females.

5 As with alligators, the sex of tortoises is determined by egg temperature. However, the tortoise differs entirely from the alligator in that tortoise eggs that develop at the right temperature produce large females and those incubated at lower temperatures produce smaller males.

6 For male tortoises, there is little advantage in being large, since tortoise fights are relatively **rare** and most males have a chance to mate. For females, however, there are definite advantages in being big. The number of eggs that a female can carry inside her is strictly limited by the size of her shell. Large females lay more eggs than small ones. Again, the determination of sex by the temperature **ensures** that females produce young offspring with the best prospects of continuing the species.

7 Another nursery gardener, the Australian mallee fowl, incubates its eggs by burying them in a heap of vegetation or compost. It builds a mound up to one metre high and about five metres wide, collecting together four tons of leaves and soil. The female lays up to thirty eggs in the centre of the heap of vegetation, then she departs and the male covers the eggs and takes up his vigil. The male constantly probes the nest with his beak to gauge temperature, which must be about thirty-three degrees Celcius. The eggs only take seven weeks to develop and hatch, but the whole process keeps the mallee fowl busily occupied for eleven months of the year.

8 Parental concern for eggs is unusual in most snakes. Most are satisfied with burying their eggs in a safe place, then abandon them to take their chances. However, there are some pythons that not only protect their eggs, but incubate them too.

Warm, incubate, and protect eggs.

9 After laying a clutch of about a hundred eggs, the female python coils herself round them. She then begins to shiver, making rhythmic contractions of her muscles that can raise her body temperature by as much as seven degrees Celcius above that of her surroundings. She gently shuttles the eggs in and out of the sun.

10 There are cold-blooded snakes which cannot use their body heat to incubate their eggs. Although several other species of snakes guard their eggs, so far as is known, only the python incubates them. This may be because other species lack the massive muscle power required to generate the necessary warmth.

11 For reptiles, the ideal environment is a warm climate whose even temperatures permit the eggs to hatch unaided. Reptiles are also found in places ranging from tropical rain forests to chilly moorlands. In some of these, a number of species have found different solutions to the problem of incubating eggs. The European grass snake, for example, lays its eggs in piles of rotting vegetables. The heat generated by the chemical breakdown of the plant material is just right for the eggs.

12 There are dangers, too, in such an environment. Fungi and bacteria abound and some protection from them is essential if the developing young ones are to survive. The protection is provided by the tough, leathery shell of the grass snake's eggs. To minimise exposing its eggs to predators, the grass snake also lays its eggs in an environment whose background colour is identical to the eggs' colour.

27 T 6/16.4

13 The ostrich, the largest living bird, is unable to fly and must therefore make its nest in a scrape on the ground. Ostrich eggs weigh about one and half kilogrammes each and make a meal not to be despised by even such large predators as jackals, hyenas and the occasional lion. Major hazards to survival call for special measures to combat them.

The ostrich's response has been to evolve a highly unusual pattern of breeding and incubating.

14 A male ostrich forms a pair bond with only one bird, the 'major hen', although he will also mate with as many other females as he can. These 'secondary females' are allowed to lay their eggs into the nest, but take no part in incubating them. This task, the male shares with his major hen. He sits on the eggs during the night when the danger is greater and the major hen takes over in the day.

15 It is rare for an animal to look after the offspring of others, since helping them will decrease the food and other resources available for its own. The major hen is no more unselfish than any other female bird. When the nest is full and she can no longer effectively incubate all the eggs, she pushes out some of those that do not belong to her. These make a circle of discarded eggs round the nest.

16 Lying neglected in the sun, these **discarded** eggs will never hatch, but they are the first eggs that any predator will find and may well be **sufficient** to satisfy its hunger. They will, at any rate, therefore, divert attention from the major hen's eggs which remain in relative security beneath the parent in the centre of the nest.

Adapted from: *Exploring the Secrets of Nature, Readers Digest,* 1994.

Answer **all** the questions on the answer paper provided.

From paragraph 1

1 **(a)** **(i)** What makes the female alligator fail to incubate her eggs? [1]

(ii) How does the female alligator solve that problem of failing to incubate her eggs? [1]

(iii) How does the mound of vegetation incubate the eggs? [1]

From paragraph 2

(b) **(i)** 'This is a useful solution ....' Explain **fully** what 'This' refers to. [1]

(ii) "The temperature within the heap varies by only a few degrees." What effect will be noticed in the alligator offspring when the eggs are hatched in low temperature conditions? [1]

From paragraph 3

(c) Why is size very important for the male alligator?

[1]

From paragraph 4

(d) Quote a phrase of **six consecutive words** which explains the importance of temperature to the unhatched eggs.

[1]

From paragraphs 4 and 5

(e) What will be the noticeable difference as an effect of the right temperature on the incubation of eggs for alligators and tortoises?

[2]

From paragraph 6

2 **(a)** **(i)** Explain the reason why tortoises, unlike crocodiles, have a better chance for mating.

[1]

(ii) What evidence is there in this paragraph to show that the author feels it is important for tortoises to guard against extinction?

[1]

From paragraph 7

(b) **(i)** Quote a phrase of **ten consecutive words** which shows the role of a male Australian mallee fowl in the incubation of eggs.

[1]

(ii) Explain, in your own words, why a male Australian mallee fowl keeps on probing the nest with its beak.

[1]

(iii) Give **two reasons** why a mallee fowl is busily occupied for eleven months a year, yet it only takes seven weeks to develop and hatch the eggs.

[2]

From the whole passage

(c) Choose **five** of the following words or phrases which are in bold print in the passage. For each of them, give **one word** or a **short phrase** (of not more than seven words) which has the same meaning that the word or phrase has in the passage.

1. scrape together (paragraph 1)

2. impact (paragraph 2)

3. vitality (paragraph 2)

4. ferocious (paragraph 3)

5. rare (paragraph 6)

6. ensures (paragraph 6)

7. discarded (paragraph 16)

8. sufficient (paragraph 16)

[5]

3 Part of the passage describes how some creatures warm, incubate and protect their eggs till they hatch.

Write a summary of the way the python, grass snake and the ostrich warm, incubate and protect their eggs.

Use only the information from paragraph 9 up to the end of the passage.

Your summary, which should be in continuous writing (not note form), must not be longer than **160 words**, including the given ten (10) words. Write each word in a separate box on the grid answer sheet provided by Zimsec on page 7 and 8 of this question paper. If you make a mistake, cancel the word(s) and write the correct word(s) in the same box(es) above or next to the cancelled word(s). Tear off the grid answer sheet from this question paper and attach it to the other answer sheets.

Begin your summary as follows:
After laying about a hundred eggs, the female python then ….

[20]

SECTION B : SUPPORTING LANGUAGE STRUCTURES (10 MARKS)

Answer **all** questions in this section.

You are advised to spend **not more than 30 minutes** on this section.

4 **(a)** Select and write the correctly spelt word from those in brackets in the following sentences. Write the correct word only.

(i) Only the major hen has the (privilege/priviledge/previledge) to incubate the eggs. [1]

(ii) (Occassionally/Occasionally/Ocasionally), lions love to eat ostrich eggs. [1]

(b) Join the following pairs of sentences using the words: which/whom/whose/ /who appropriately.

(i) For reptiles, the ideal environment is a warm climate.
Even temperatures permit eggs to hatch unaided. [1]

(ii) The female python makes rhythmic contractions of her muscles.
The rhythmic contractions raise her body temperature. [1]

(c) Complete the following sentences with the correct word in brackets. Write the correct word only.

(i) If other snakes had massive muscle power, they (would /will) be able to incubate their eggs. [1]

(ii) If reptiles (are/were) warm blooded, they would easily incubate their eggs. [1]

(d) Re -write the following sentences avoiding unnecessary repetition.

(i) This task is the job for the male to share with his major hen. [1]

(ii) When the nest is full, and cannot take anymore, the ostrich major hen pushes some of the eggs out. [1]

(e) **Re-write the following sentences in the positive form, but retaining the same meaning.**

(i) **The major hen is not selfish.** [1]

(ii) **The ostrich's deliberate exposure of some of its eggs to predators is not responsible behaviour.** [1]

Python, snake & ostrich.