

REVISION: JUNE EXAM QUESTIONS (PAPER 1)

24 SEPTEMBER 2014



Lesson Description

In this lesson we:

- Revise questions appearing in paper 1.

June Exam Questions (Paper 1)

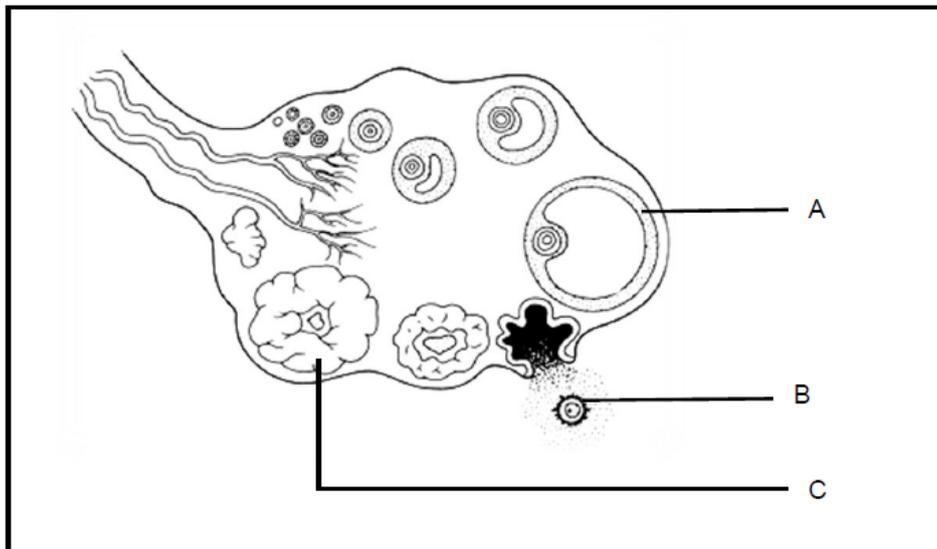


Improve your Skills

Question 1

(Adapted from Gauteng, June 2014, Question 3.3)

The diagram below shows a cross-section through the ovary in the human reproductive system. Answer the questions based on the diagram.



- 1.1 Provide labels for structures A and C. (2)
- 1.2 (a) Identify structure labelled B. (2)
(b) Give the ploidy of the structure labelled B. (2)
- 1.3 (a) Give the name of the hormone secreted by structure A. (2)
(b) Provide ONE function of the hormone identified in QUESTION 1.3 (a) (2)
- 1.4 Discuss how oogenesis is prevented once a female is already pregnant. (4)

Question 2

(Adapted from Gauteng, June 2014, Question 3.4)

Records of human fertility for the period 1941 to 1990 have shown changes in the sperm counts of normal men.

The table below summarises the changing percentages of men with high or low sperm counts over a period of 50 years.

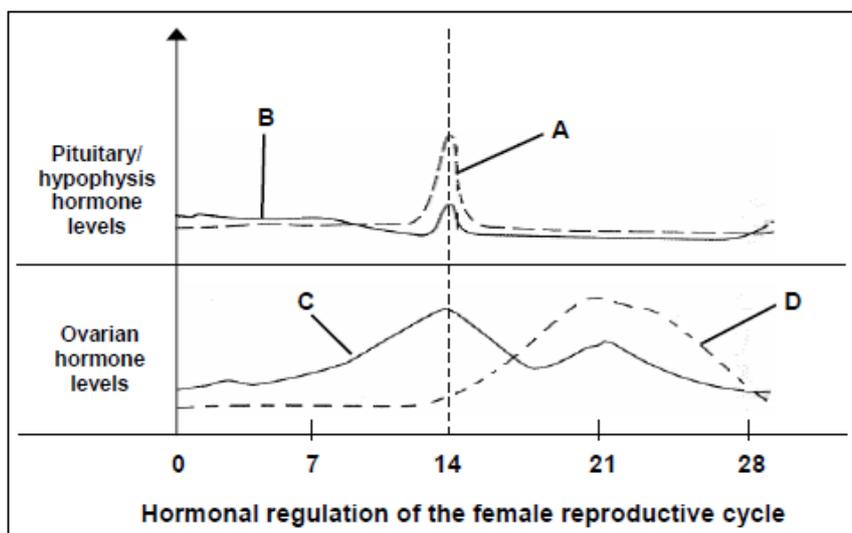
TIME PERIOD	MEN WITH HIGH SPERM COUNTS (%)	MEN WITH LOW SPERM COUNTS (%)
1941–1950	50	4
1951–1960	45	5
1961–1970	28	11
1971–1980	21	14
1981–1990	15	18

- 2.1 On the same system of axes, draw TWO sets of bar graphs to compare the percentages of men with high sperm counts with those with a low sperm count over the fifty year period from 1941 to 1990. (7)
- 2.2 Describe the trend for men with low sperm counts and compare it to those with high sperm counts over the 50-year period. (3)

Question 3

(Adapted from KZN, June, Question 2.3)

Study the graphs below showing the levels of the hormones involved in the menstrual cycle in most women.



- 3.1 Provide the label for hormone A.. (1)
- 3.2 According to the graph, during which period of time is the level of hormone C lower than the level of hormone D? (1)
- 3.3 Name and explain the relationship that exists between the hormones labelled B and D in the menstrual cycle. (4)
- 3.4 Describe the changes that occur in the ovary during the 28 day cycle. (4)
- 3.5 If fertilisation occurs on day 15, describe the changes that occur in the fertilised egg until the embryo attaches onto the endometrium. (3)
- 3.6 A woman takes her temperature reading on a daily basis during her menstrual cycle.

The table provided below shows her temperature records for days 11 to 19 of one of her menstrual cycles. A slight drop in temperature followed by a sharp rise in temperature indicates that ovulation has occurred.

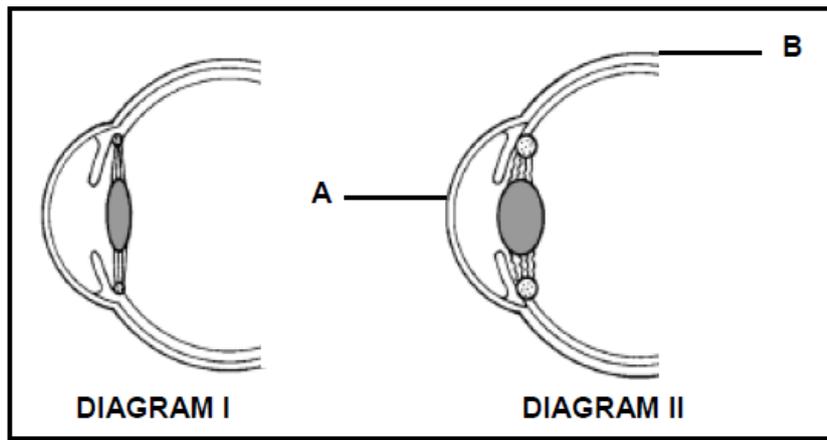
Day	11	12	13	14	15	16	17	18	19
Temperature °C	36,5	36,6	36,6	36,6	36,6	36,2	37,1	36,9	36,9

- (a) According to the graphs, on which day do most women ovulate? (1)
- (b) Some women use the information in the table to prevent themselves from falling pregnant. Use the information in the table to explain why this method of preventing pregnancy is not reliable. (3)

Question 4

(Adapted from Gauteng, June, Question 3.1.4)

Diagrams I and II show a section through a portion of a human eye. Study the diagrams and answer the questions that follow.

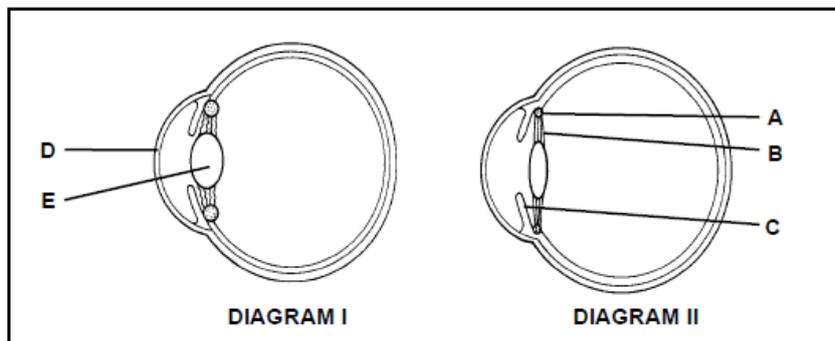


- 4.1 Which diagram represents the eye when a person is reading a book? (1)
- 4.2 Name and describe the process that causes the change FROM diagram I to diagram II. (5)
- 4.3 Discuss how structure B is suited to its function. (2)
- 4.4 An unequal curvature of structure A can cause visual problems.
- a) Name this condition
- b) Describe how it is treated (2)

Question 5

(Adapted from KZN, June, Question 1.4)

The diagrams below show the changes that take place in the eye when focussing on an object.



- 5.1 Provide labels for parts A, B and D. (3)
- 5.2 Write down the LETTER and NAME of the part that provides colour to the eye. (2)

- 5.3 Provide the term used to describe the shape of part labelled E. (1)
- 5.4 Which diagram (I or II) represents the eye of a person looking at an object that is closer than six metres? (1)
- 5.5 Is the refractive power of the lens smaller in Diagram I or Diagram II? (1)

Exam Questions Paper 1

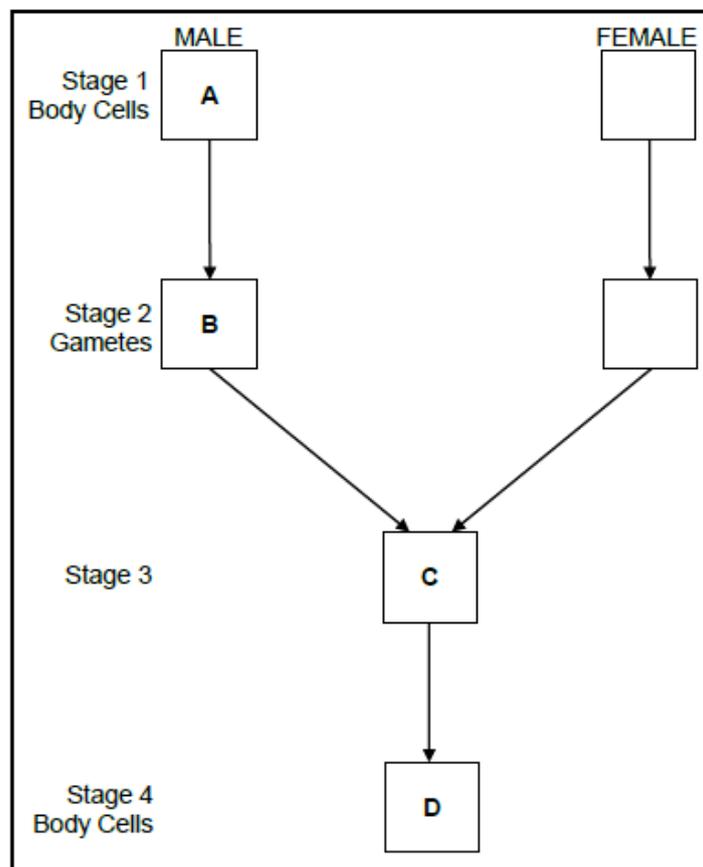


Improve your Skills

Question 1

(Adapted from paper 1 exemplar 2014)

The diagram below shows the various stages in the life cycle of a human.



- 1.1 State the chromosome number of the cells represented by A, B and C. (3)
- 1.2 Name the structure at Stage 3. (1)
- 1.3 Between which two consecutive stages does meiosis occur in the life cycle? (1)
- 1.4 Between which two consecutive stages does mitosis occur in the life cycle? (1)

Question 2

(Adapted from P1 exemplar 2014)

The Human Sciences Research Council (HSRC) conducted a survey on food security across the provinces. The results showed that the overall percentage of food-secure households in South Africa is 45,6% as opposed to 48% in 2008. The results, indicating the percentage of food-insecure households in each province according to the latest survey, are shown in the table below.

notes for...

PROVINCE	FOOD-INSECURE HOUSEHOLDS (%)
Eastern Cape	36
Limpopo	31
Mpumalanga	30
Free State	29
KwaZulu-Natal	28
Northern Cape	21
Gauteng	19
Western Cape	16

- 2.1 What is meant by food security?
- 2.2 Use the data in the table to draw a bar graph for the four provinces that have the highest percentage of food-insecure households.
- 2.3 State how the use of fertilisers by farmers can:
 - (a) Increase food security for a country
 - (b) Decrease food security for a country
- 2.4 State how the use of pesticides by farmers can:
 - (a) Increase food security for a country
 - (b) Decrease food security for a country
- 2.5 State TWO factors, other than the use of fertilisers and pesticides, which may have led to a decrease in the percentage of food-secure households in South Africa since 2008.

Question 3

(Adapted from paper 1 exemplar 2014)

The carbon dioxide concentration in the atmosphere was recorded at 400 parts per million (ppm) in May 2013 compared to 316 parts per million (ppm) in 1958. This change is due to an increase in the use of fossil fuels as well as an increase in deforestation.

- 3.1.1 Describe how deforestation contributes to the high carbon dioxide concentration in the atmosphere (2)
- 3.1.2 State ONE other impact of deforestation on the environment. (4)
- 3.1.3 Explain why we should be concerned about the rising carbon dioxide levels. (2)
- 3.1.4 Suggest ONE way in which the government can reduce carbon emissions caused by the generation of electricity.
- 3.2 A Grade 12 learner performed an investigation to determine the effect of light on the growth of plant shoots. The learner divided the plants that were used into three groups as follows:

Group A – The tip of the shoot was intact.

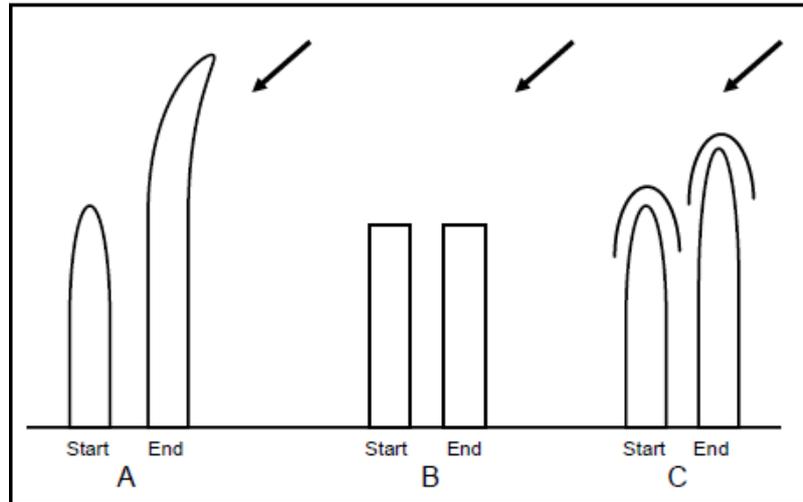
Group B – The tip of the shoot was removed.

Group C – The tip of the shoot was covered by a cap that does not allow light to pass through.

The diagram below shows each shoot at the start of the investigation and next to each, the same shoot at the end of the investigation.

The arrows indicate the direction of light in each investigation.

notes for...

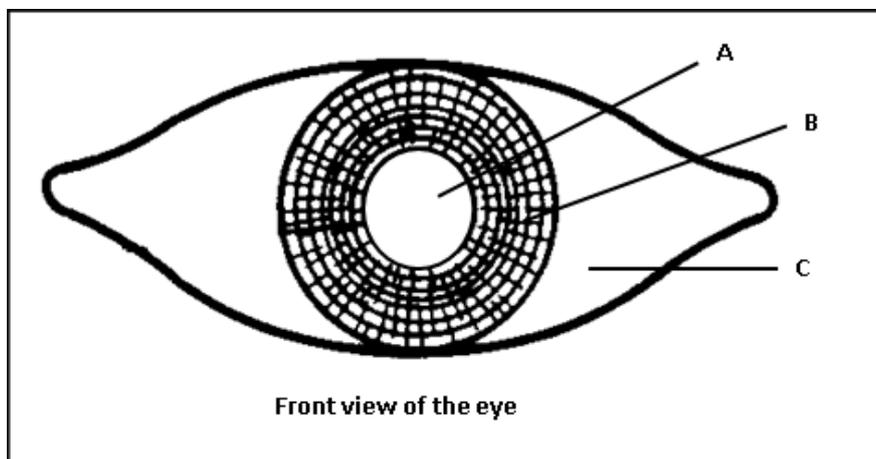


- 3.2.1 Name the hormone responsible for the growth response shown above.
- 3.2.2 Explain the results observed in investigations A and C, as illustrated in the diagram above
- 2.2.3 State TWO ways in which the learner could improve the reliability of this investigation.
- 3.2.4 Name the dependent variable in this investigation.
- 3.2.5 State TWO factors that must be kept constant in this investigation.

Question 4

(Adapted from nated Biology May 2014)

Study the diagram below, that shows the front view of the human eye and answer the questions that follow.



- 4.1 Identify parts A and B. (2)
- 4.2 Describe what happens to B when light entering the eye becomes less intense. (4)
- 4.3 Give a reason for the changes described in QUESTION 4.2. (2)
- 4.4 State TWO functions of the part labelled C. (2)
- 4.5 As people get older, cloudy (opaque) patches sometimes form in the lens of the eye. These are called cataracts. How might cataracts affect the ability of the lens to carry out its function? (2)
- 4.6 A person with a cataract can have his cloudy lens replaced with one made from a special material. State THREE properties of the material to be used successfully as a lens for a person. (3)