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ST BENEDICT'S COLLEGE

SUBJECT	LIFE SCIENCES	DATE	20 JUNE 2024
GRADE	12	MARKS	55
EXAMINER	MRS S. STEGMANN	MODERATOR	MRS B. ZAJAC
NAME		DURATION	1 HOUR
CLASS			

INSTRUCTIONS:

1. This paper consists of 8 pages- 7 pages of questions and 1 page of additional writing space. Please check that your question paper is complete.
2. Answer all questions on the question paper.
3. Write in blue or black pen only.
4. Read all questions carefully and answer in as much detail as possible.
5. All diagrams should have a clear heading unless otherwise stated.
6. It is in your own interest to write legibly and to present your work neatly.

QUESTION	POSSIBLE MARK	MARK ACHIEVED
1	12	
2	22	
3	21	
TOTAL: 55		

Question 1:

1.1. Give the correct biological term for each of the following descriptions.

(i) The sac in which the testes are suspended.

(ii) The process for the development of sperm.

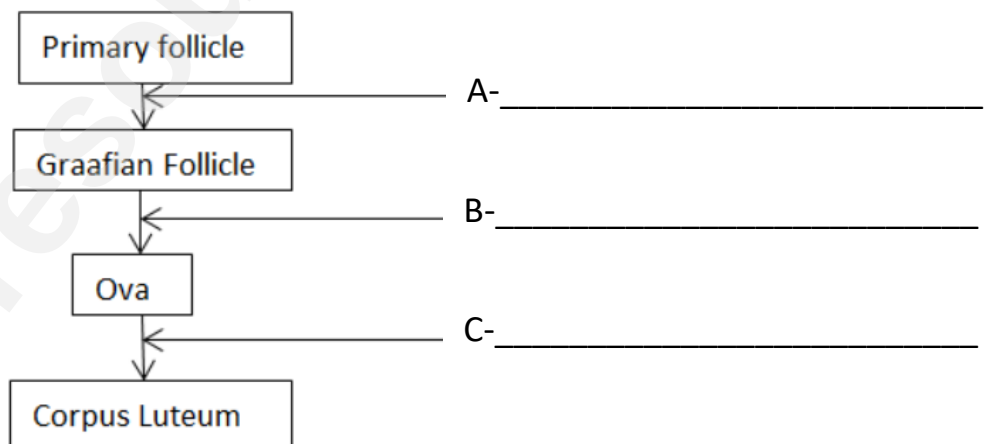
(iii) Cells that lie between the seminiferous tubules and produce testosterone.

(iv) Secretions from male glands that forms part of semen.

(v) Opening of uterus from the vagina.

(5)

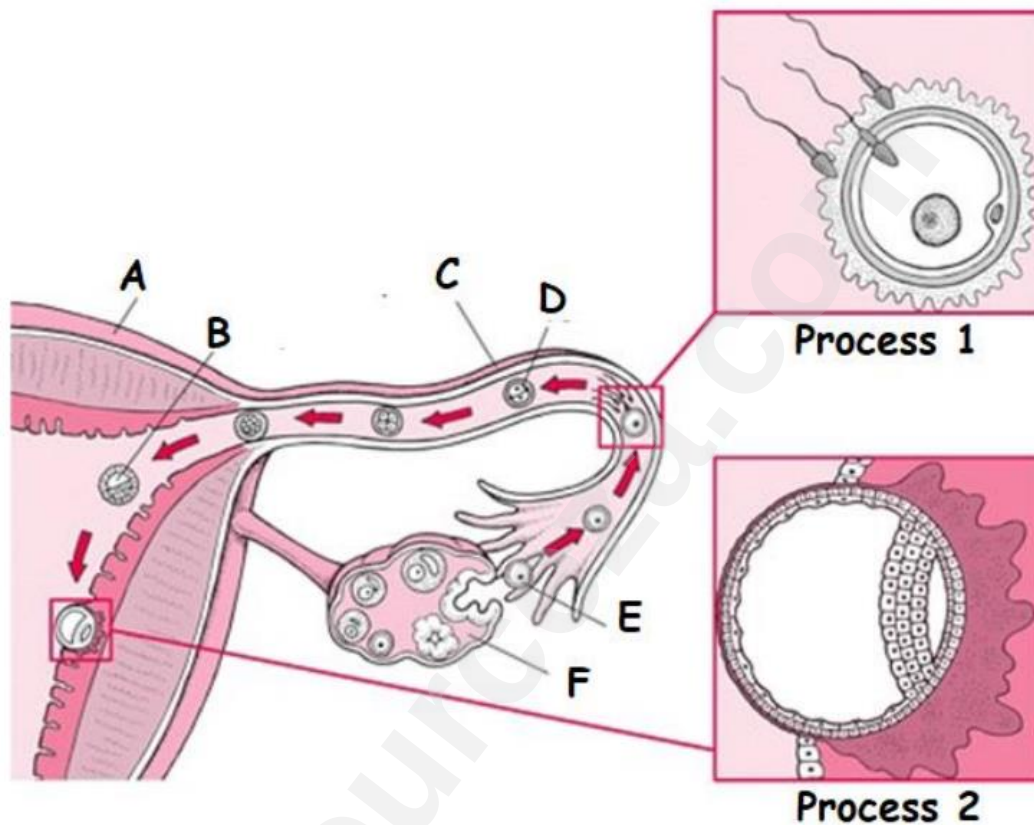
1.2. Provide the names of the hormones (A-C) responsible for ovarian changes during the menstrual cycle. (3)



1.3. Explain why the corpus luteum stays active throughout pregnancy but will only remain active for 10-12 days if fertilisation does not occur. (4)

Question 2

Study the diagram below and use it and your own knowledge to answer the questions that follow.



2.1. Provide labels for the following structures:

- B- _____
D- _____
F- _____

(3)

2.2. What is the name of process 1?

(1)

2.3. Provide an annotated diagram of the male sex cell involved in process 1.

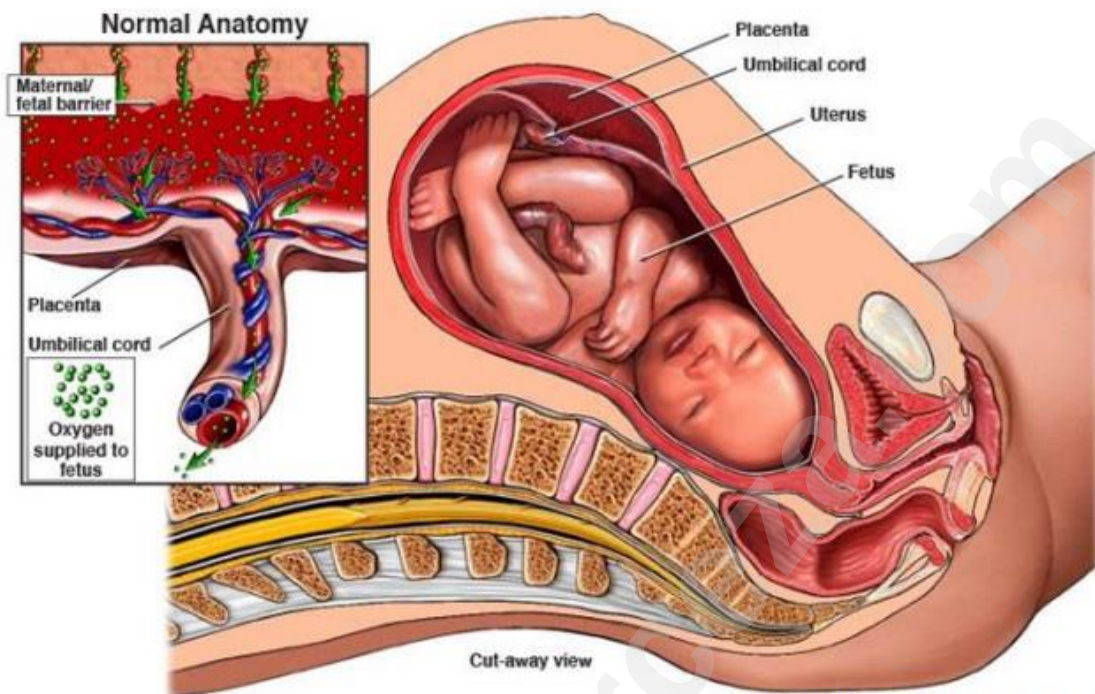
(5)

LIFE SCIENCES- HUMAN REPRODUCTION

- 2.4. During the development of male and female gametes there are distinct differences that occur between the gametes.
State one difference and one similarity that can be seen between the developing gametes after the first meiotic phase. (2)
-
-
-
-
- 2.5. The nucleus of a human body cell has a mass of about 6×10^{-12} g. The nuclei of sperm have a mass of 3×10^{-12} g. Suggest a reason for this. (2)
-
- 2.6. Which letter from the diagram indicates a surge of LH? (1)
-
- 2.7. What is the significance of this LH surge in the menstrual cycle? (2)
-
-
- 2.8. Name the two hormones produced by structure F. (2)
-
- 2.9. In the space below sketch a graph showing the levels of the hormones mentioned in 2.8. over a 28 day menstrual cycle.
No heading required. (4)

Question 3

Study the image below and use it and your own knowledge to answer the questions that follow.



Taken from: <https://www.abclawcenters.com>

3.1. Give TWO functions of the placenta. (2)

3.2. List the stages of parturition. (3)

3.3. What hormone is responsible for the onset of child birth? (1)

3.4. Explain the importance of the maternal/foetal barrier. (2)

3.5. Give one function of the amniotic fluid.

(1)

3.6. An ultrasound (sonogram) is an imaging technique that uses sound waves to produce images of the foetus in the uterus. Dr Mkhize monitored the development of the foetus in one of her patients during pregnancy by measuring the foetal head circumference. She also monitored the blood flow along the umbilical cord.

The results are shown in the table below.

Time (weeks)	Head circumference (cm)
14	12
18	16
22	20
26	24
30	28
34	31
38	33
40	36

3.6.1. Give the correct biological term for pregnancy.

(1)

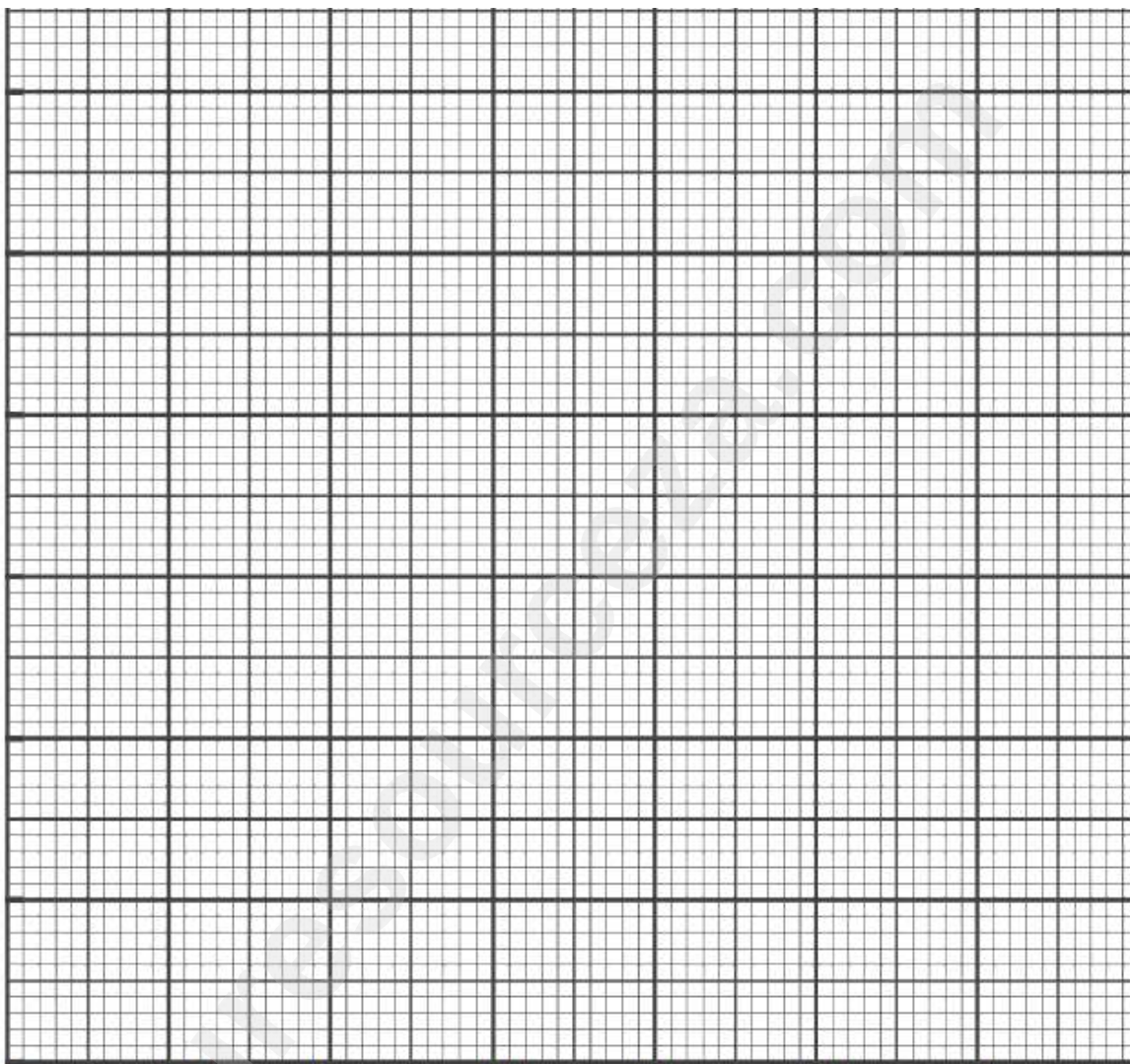
3.6.2. While doing the ultrasound, the doctor noticed that the umbilical arteries were blocked but there was normal blood flow through the umbilical vein.

Explain the effect that this will have on the developing foetus.

(5)

3.6.3. Use the information from the table to plot a line graph in the grid on the next page.

(6)



[21]

TOTAL: 55 MARKS

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