



SUBJECT and GRADE	Life Sciences Grade 12									
TERM 2	Term 2 (Week 5)									
TOPIC	Human reproduction (Structure of male and female reproductive systems, Puberty, gametogenesis)									
AIMS OF LESSON	<p>At the end of this lesson you should be able to:</p> <ul style="list-style-type: none"> • Interpret diagrams of the female and female reproductive systems • Know what puberty is • Differentiate between spermatogenesis and oogenesis 									
RESOURCES	Paper based resources	Digital resources								
	<p>Refer to:</p> <ul style="list-style-type: none"> • Your textbook sections on human reproduction • Pages 19 to 21 in your Mind the Gap Study Guide 	<p>Click on links below to download online resources on this topic/s:</p> <p>Refer to one-pager on male reproductive system: https://drive.google.com/file/d/1PIZtHN1Tvdm_xWPbrleJnfMCvUyX5Fli/view?usp=sharing</p> <p>Refer to questions on human reproduction: https://drive.google.com/file/d/1ANnJ2RB0Kmm2ra5qomngi8-vP5oXuHv1/view?usp=sharing</p>								
INTRODUCTION	<ul style="list-style-type: none"> • You have studied human reproduction in Grade 9 • Revise the section on meiosis that you have covered in term 1 in Grade 12. 									
CONCEPTS AND SKILLS	<p>Study the following definitions. (Note that at least 2 marks are awarded if you can define a term correctly in the examination)</p> <p>Vas deferens - The tube in the male reproductive system that connects the epididymis with the urethra</p> <p>Testosterone - A hormone that stimulates the maturation of sperm and puberty in males</p>	<p>Know the meaning of instructional verbs in test and examination questions e.g.</p> <table border="1"> <thead> <tr> <th>Instructional verb</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>Give the name of something</td> </tr> <tr> <td>Differentiate</td> <td>Use differences to qualify between two or more categories</td> </tr> <tr> <td>Tabulate</td> <td>Draw a table and indicate the answers as direct pairs.</td> </tr> </tbody> </table>	Instructional verb	Meaning	Name	Give the name of something	Differentiate	Use differences to qualify between two or more categories	Tabulate	Draw a table and indicate the answers as direct pairs.
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Spermatogenesis- The production of male gametes through meiosis

Chorion - The membrane that, together with the endometrium, forms the placenta

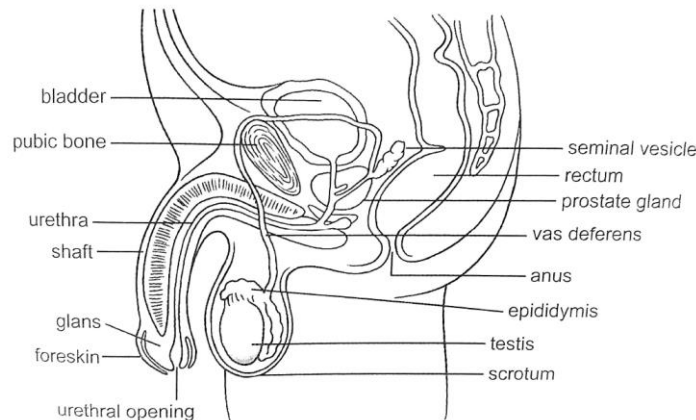
Acrosome - The structure in the head of a sperm containing digestive enzymes

Vagina – structure in the female reproductive system where semen is deposited during copulation

Fallopian tube/oviduct –structure in the female reproductive system where fertilization takes place

Puberty - The stage when secondary characteristics develop in males and females

Male reproductive system

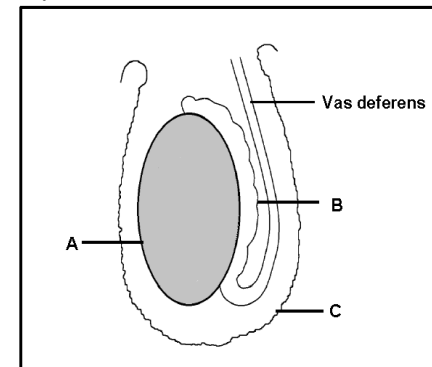


Describe	State in sentences the main points of a process
Explain	Give your answer in a cause-effect or statement and reason sequence
Compare	Give similarities and differences between concepts

Answer the following questions:

Question 1:

The diagram below represents some parts of the male reproductive system.



1.1 *Identify* parts A, B and C

1.2 *Describe* the process of spermatogenesis in part A.

1.3 Test results show that a man has a low sperm count.

Explain why a doctor would advise the man to wear underwear that is not tight.

1.4 During a vasectomy the vas deferens from both testes is cut. *Explain* ONE reason why a man who:

(a) Does not want to have children will choose to have a vasectomy

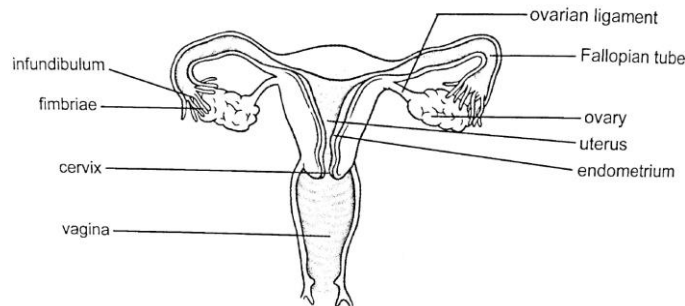
(b) Has had a vasectomy is still capable of ejaculation



Use your textbook and study the functions of the following parts of the male reproductive system:

- Testis
- Epididymis
- vas deferens
- seminal vesicle
- prostate gland
- Cowper's gland
- urethra

Female reproductive system:



Use your textbook and study the functions of the following parts of the female reproductive system:

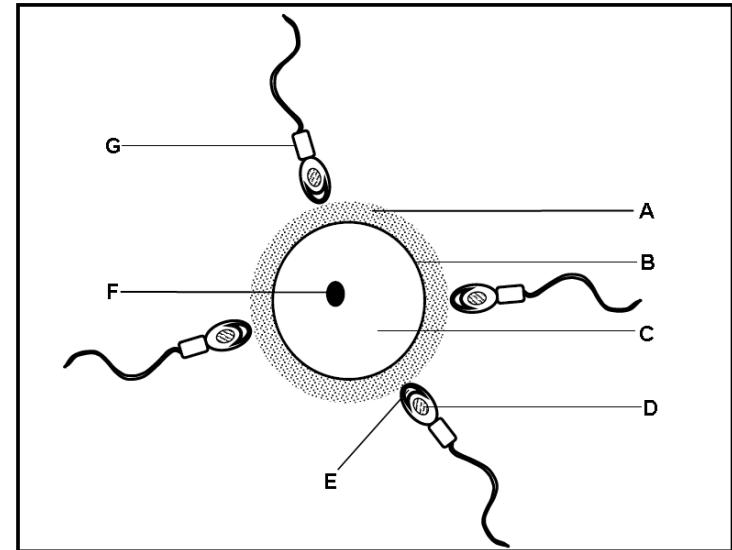
- Ovary
- Fallopian tubes
- Uterus lined by endometrium
- cervix
- vagina with its external opening and the vulva

Question 2:

Explain THREE structural adaptations of male sperm for fertilisation.

Question 3:

The schematic diagram below shows a human ovum that is about to be fertilised. The diagram is not drawn to scale.



3.1 Identify parts A, B, C and F

3.2 Give the LETTER and NAME of the part that:

- Contains the mitochondria
- Contains enzymes required to penetrate the ovum
- Will enter the ovum during fertilisation



Puberty:

The stage when secondary characteristics develop in males and females

Use your textbook and state the:

- Main changes that occur in male characteristics during puberty under the influence of the hormone, **testosterone**
- Main changes that occur in female characteristics during puberty under the influence of the hormone, **oestrogen**

Gametogenesis:

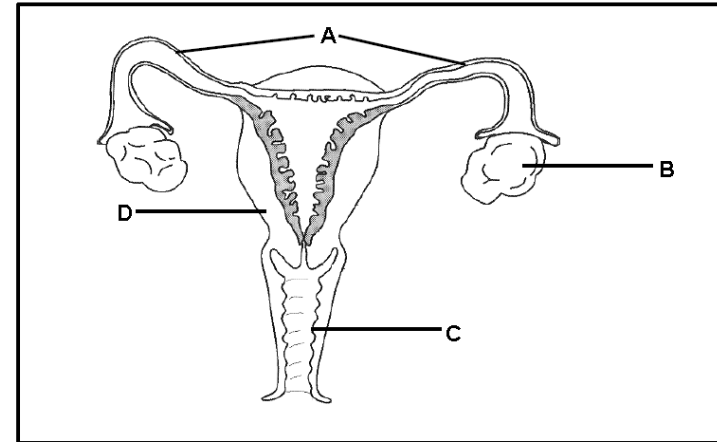
- Gametogenesis is the formation of gametes by meiosis
- Male gametes formed by **spermatogenesis**
- Female gametes formed by **oogenesis**

Spermatogenesis:

- Diploid cells in the seminiferous tubules of the testes undergo meiosis under the influence of the hormone, testosterone, to form haploid sperm cells

Question 4:

The diagram below represents the human female reproductive system.



4.1 *Identify* part C.

4.2 *State* ONE function of part D.

4.3 *Name* the hormone secreted by part B during the first week of the menstrual cycle.

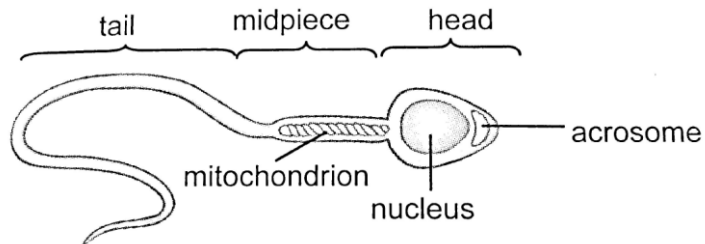
4.4 *State* how the hormone named in QUESTION 4.3 influences part D.

4.5 During tubal ligation, part A is surgically cut or tied.

Explain how this procedure prevents pregnancy



Structure of a sperm:



Use your textbook and study the following functions of the parts of a sperm cell:

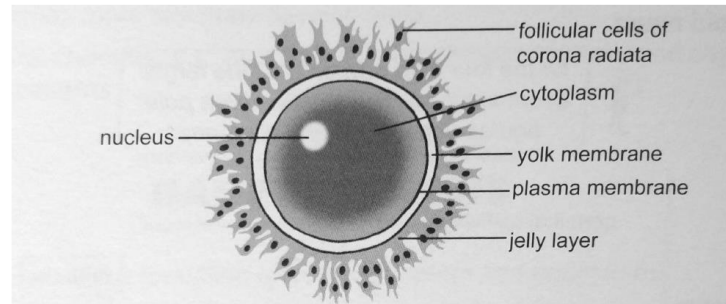
- acrosome,
- head with haploid nucleus,
- middle portion/neck with mitochondria and a tail)

Oogenesis:

- Diploid cells in the ovary undergo mitosis under the influence of the hormone, FSH to form numerous follicles.
- One cell inside a follicle enlarges and undergoes meiosis.
- Of the four cells that are produced, only one survives to form a mature, haploid **ovum**.



Structure of an ovum:



Use your textbook and study the following functions of the parts of an ovum:

- layer of jelly,
- haploid nucleus,
- cytoplasm

Common errors made by learners in examinations:

- Learners unable to label and provide the functions of different parts of the male and female reproductive systems
- Learners cannot differentiate between spermatogenesis and oogenesis

ACTIVITIES/ASSESSMENT	<ul style="list-style-type: none"> • Complete the activities/questions on the sections of human reproduction in your textbook. • Work through the questions and activities on page 19 -21 of your Mind the Gap Study Guide
CONSOLIDATION	<ul style="list-style-type: none"> • Define all the terminology relevant to the topic/s covered in this lesson • Work through the questions on human reproduction in past examination papers
VALUES	By studying and learning about the human reproduction you will develop a deep understanding of the male and female reproductive systems, puberty, pregnancy and contraceptive devices