

Date _____

Name _____ Student No. _____

Teacher _____ School _____

**Biology 12****~~Section Assignment 4.3~~ Unit 13**

Remember to submit the following with this assignment:

Title	From	Marks
Part A: The Pathway of Sperm	4.3	12
Part B: Testosterone Control	4.3	8
Part C: Reproduction	4.3	10
Part D: Written Response	4.3	31
Part E: Matching	4.3	14

Section Assignment 4.3 Part A

The Pathway of Sperm

Choose ONE of the following options.

Option A:

Research causes of infertility in men. Write a brief 250 to 500 word essay that summarizes your findings. Describe three causes and the mechanisms that contribute to them. (1 mark for each cause; 3 for each accurate description: total 12 marks)

Option B:

Design a metaphor for the process of forming sperm and seminal fluid and sending it out of the body. Some suggestions are a factory from which products are shipped, or a bicycle courier who has materials added to a package and then delivers it. Describe the process in your metaphor and identify the metaphorical relationships described. For example, the package is semen. (Marks are earned by providing an appropriate metaphorical reference to all components of the male genital tract.) (12 marks)

Option C:



If you have access to a computer, use a computer drawing program to construct a diagram that shows the pathway of sperm. Label all structures that the sperm pass through and those that contribute to seminal fluid. (6 marks for drawing, 6 marks for correct labels: Total 12 marks)

Marks

12

Section Assignment 4.3 Part B

Testosterone Control

Answer the following questions in one or two complete sentences.
(2 marks each)

1. A boy suffered from a brain tumor centred in the hypothalamus. To save his life, the hypothalamus was removed. Speculate on how his puberty will be different from other boys.
2. How could the boy be treated to relieve him of this condition?
3. Would this be a short-term treatment to kick start puberty or would ongoing treatment be necessary? Explain your answer.
4. Male athletes who take artificial testosterone (an anabolic steroid) to enhance their physique suffer from atrophy (look it up in a dictionary) of the testes. Think about what testosterone does to levels of neuroendocrine hormones, and explain why this occurs.

Marks

8

Section Assignment 4.3 Part C Reproduction

This assignment covers all the lessons in Section 4.3.

Choose the best answer for each question

1. Testosterone is produced in the:
 - A. epididymis
 - B. interstitial cells
 - C. seminal vesicles
 - D. seminiferous tubules

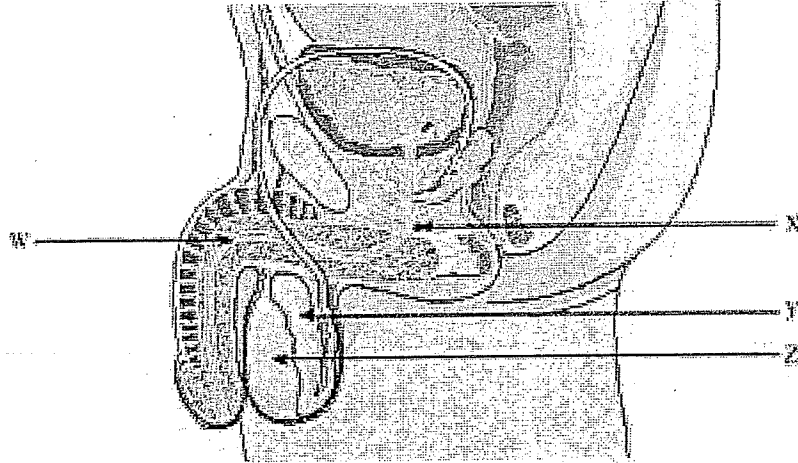
2. Which of the following would be affected by removal of the prostate gland?
 - A. urine formation
 - B. motility of sperm
 - C. sperm maturation
 - D. follicle development

3. Which of the following hormones is controlled by positive feedback?
 - A. oxytocin
 - B. testosterone
 - C. progesterone
 - D. follicle-stimulating hormone (FSH)

4. Use the following list to answer this question.
 1. urethra
 2. epididymis
 3. vagina
 4. oviduct
 5. ductus vas deferens

- Which of the following would be the correct path of sperm on its way to fertilize an egg?
- A. 1, 2, 3, 5, 4
 - B. 1, 3, 4, 5, 2
 - C. 2, 1, 3, 4, 5
 - D. 2, 5, 1, 3, 4
5. Which part of a mature sperm contains mitochondria?
- A. tail
 - B. head
 - C. midpiece
 - D. acrosome
6. Which of the following store sperm cells and eliminate those with major genetic defects?
- A. epididymis
 - B. interstitial cells
 - C. seminal vesicles
 - D. seminiferous tubules
7. The carbon dioxide produced by a developing fetus is removed by the:
- A. cervix
 - B. placenta
 - C. oviducts
 - D. corpus luteum
8. Which hormone triggers the release of the egg from the developing follicle?
- A. estrogen
 - B. progesterone
 - C. luteinizing hormone (LH)
 - D. follicle stimulating hormone (FSH)

9. The function of the structure labelled Z is to:



- A. store urine
- B. mature sperm
- C. secrete testosterone
- D. produce seminal fluid

10. The posterior pituitary gland secretes:

- A. oxytocin
- B. glucagon
- C. adrenalin
- D. growth hormone (GH)

Marks

10

Section Assignment 4.3 Part D

Written Response

Answer each question with one or two brief sentences.

1. State the effects that each hormone has on the body during puberty. (8 marks)
 - A. Testosterone: (three effects)
 - B. Estrogen: (three effects)
 - C. Follicle stimulating hormone: (two effects)
2. Name the source and target of luteinizing hormone (LH) in the female. (2 marks: 1 mark each)
3. List two characteristics of the endometrium of the uterus during the second half of the menstrual cycle. (2 marks: 1 mark each)
4. Name the hormone responsible for these characteristics of the endometrium. (1 mark)
5. Describe the location and function of the cervix. (2 marks: 1 mark each)
6. List the four structures that contribute to the formation of semen. (2 marks: 0.5 mark each)
7. Give one function of each of the following. (2 marks: 1 mark each)
 - A. Oviducts (Fallopian tubes):
 - B. Uterus
8. List two components of semen. (2 marks: 1 mark each)
9. Name two parts of a mature sperm and state one function of each. (2 marks: 0.5 mark each for names, 0.5 mark each for functions)
10. Give one function of each of the following in the male reproductive system. (2 marks: 1 mark each)
 - A. Seminal vesicles:
 - B. Seminiferous tubules

11. What is the function of each of the following hormones in the female reproductive system? (2 marks: 1 mark each)
- A. Luteinizing hormone:
 - B. Follicle-stimulating hormone:
12. Give two functions of seminal fluid. (2 marks: 1 mark each)
13. What gland is the source of luteinizing hormone (LH)? (1 mark)
14. What is the function of luteinizing hormone (LH) during the last half of the ovarian cycle (days 15 to 28)? (1 mark)

Marks

31

Section Assignment 4.3 Part E Matching

Write the letter of the term from Column A beside the correct definition in Column B. Each term may be used only once, and not all the terms will be used. (14 marks)

Column A	Column B
A. Prostate gland	1. Produce sperm and testosterone
B. Oviduct	2. Provides energy for movement
C. Progesterone	3. Usual site of fertilization
D. Testes	4. Stretching stimulates release of oxytocin
E. Interstitial cell	5. Produced in Hypothalamus
F. Epididymis	6. Collects eggs
G. Fimbriae	7. Produces fluid that neutralizes acidic vagina
H. Midpiece of sperm	8. Secretes progesterone
I. Corpus luteum	9. Stimulates secretions from the corpus luteum
J. GnRH	10. An organ of copulation
K. Vagina	11. Area for maturation of sperm
L. Acrosome	12. Causes the endometrium to thicken
M. Luteinizing Hormone	13. Secretes testosterone
N. Cervix	14. Contains enzymes necessary to penetrate egg
O. Embedded embryo	

Marks