Review Questions: Chapter 3.1: Reproduction

SNC1D 05 - 06

Fill in the blanks

1._____ is a mixture of sperm and fluid produced by the seminal vesicles and the prostate gland. Semen

2.The _____ is the entrance to the uterus. Semen

3. Sperm cells are produced in tiny tubes in the testes called _____ .
seminiferous tubules

4. The process of _____ produces sperm and ova. meiosis

5. Ovulation occurs on about day _____ of the menstrual cycle. 14

6. The _____ _____ breaks down if fertilization does not take place. corpus luteum or uterine lining

7. The pituitary gland produces the hormone _____? FSH

8. The testes produce the hormone _____? testosterone

9. The pituitary gland produces TWO hormones (1) _____ and (2)_____?
1. FSH 2. LH

10. What causes a developing follicle to release a mature egg? LH

True – False

1. Follicle stimulating hormone stimulates the ovaries to produce ova

2. Estrogen is responsible for producing secondary sex characteristics in males.

3. Sperm are produced in the testes and are stored in the epididymis.

4. Progesterone is released by a structure in the ovary called the follicle.

5. High levels of progesterone and estrogen appear to cause the FSH level to increase.

6. The time it takes for a mammal to develop before birth is called the fertilization period.

7. Follicle stimulating hormone stimulates the ovaries to produce ova.

8. Estrogen is responsible for producing secondary sex characteristics in males.

9. Progesterone is released by a structure in the ovary called the follicle.

Answer

1. T 2. F 3. T 4. F
5. False - High levels of progesterone and estrogen appear to cause the FSH level to decrease.
6. F (gestation period)
7. T
8. False - Estrogen is responsible for producing secondary sex characteristics in females. or Testosterone is responsible for producing secondary sex characteristics in males.
9. False - Progesterone is released by a structure in the ovary called the corpus luteum.

Male Reproductive System

a) **seminal vesicles** - produce and secrete fluid to nourish sperm
b) **prostate gland** - produces and secretes fluid to nourish sperm
c) **epididymis** - stores sperm
d) **vas deferens** - conduct sperm out of the testes
e) **penis** - provides a structure by which sperm enters female
f) **urethra** - carries urine and sperm outside the body
g) **testis** - produces sperm
h) **scrotum** - protective covering for the testes

Female reproductive structures

____ i. pear-shaped organ
____ ii. birth canal
____ iii. holds developing fetus
____ iv. releases eggs
____ v. place where fertilization takes place

Answer: i. Uterus; ii. vagina; iii. uterus; iv. ovary; v. oviduct

Review: Hormones involved in the menstrual cycle.

1. a) What are hormones? Explain what they do.
b) Give an example of a hormone and describe its function in the human body.

Answer: a) 1. Substances that act like messengers in the body. 2. Hormones travel through the bloodstream and 3. cause certain cells to respond in specific ways.
b) Example of a hormone and its related function:
Estrogen - tells the uterus to prepare for a pregnancy
Progesterone - maintains a pregnancy
LH - stimulates ovulation
FSH - stimulates follicular development

2. a) Name two pituitary hormones.
b) Name two ovarian hormones
c) Describe how the function of pituitary hormones differs from that of ovarian hormones.

Answer: a) 1. FSH, 2. LH
b) 1. estrogen, 2. progesterone
c) Pituitary hormones tell the ovaries what to do.
Ovarian hormones tell the uterus what to do.

3. Does the pituitary gland affect the uterus directly or indirectly during the menstrual cycle? Explain.

Answer: 1. Indirectly (through hormone stimulation).
2. The pituitary hormones "tell" the ovaries what to do and
3. the ovarian hormones "tell" the uterus what to do.

4. a) How does the pituitary gland affect the uterus during the menstrual cycle?
b) Describe specific hormones that are involved and their roles.
c) Which hormones directly affect the uterus?

Answer: a) The pituitary gland affects the uterus indirectly.
b) The pituitary gland releases the hormone FSH, which stimulates follicles in the ovary to develop and secrete estrogen.
Estrogen causes a thickening of the uterine lining.
Increased levels of estrogen signal the pituitary gland to release LH.
LH stimulates ovaries to release estrogen and progesterone to further increase thickening of the uterine lining.
c) Estrogen and Progesterone

5. Match the definition in the column **A** with the correct hormone in **B**.

A	**B**
____ i. Stimulates follicles to develop.	a estrogen
____ ii. Induces ovulation.	b thyroxin
____ iii. Maintains a pregnancy.	c FSH
____ iv. Stimulates follicle to develop into corpus luteum.	d LH
____ v. Inhibited by luteinising hormone.	e testosterone
	f progesterone

Answer: i. c; ii. d; iii. f; iv. d; v. a

6. Match the definition in the column **A** with the correct hormone in **B**.

A	**B**
____ i. Produced by males.	a estrogen
____ ii. Directs development of female secondary sex characteristics.	b testosterone
	c progesterone
____ iii. Signals the testes to produce sperm.	d FSH
____ iv. Released by the corpus luteum.	
____ v. Causes eggs to develop in females.	

Answer: i. b; ii. a; iii. d; iv. c; v. d

7. Development from ovulation to implantation.

____ i. Occurs six to 10 days after fertilization.
____ ii. An ovum is released.
____ iii. Pregnancy begins.
____ iv. Hollow ball of cells with a group of inner cells.
____ v. Occurs in the oviduct.

Answer: i. Implantation; ii. ovulation; iii. fertilization; iv. blastocyst; v. fertilization

Multiple Choice

1. How many chromosomes are there in the nucleus of a human sperm cell?
   A) 12 B) 46 C) 23 D) 6
2. Sperm cells are produced in the :
a. Seminiferous tubules b. ER c. vas deferens d. prostate gland.
3. Sex cells like sperm and egg cells are called:
a. gonads b. gamets c. golgi bodies d. chromosomes d. zygotes
4. Egg cells are produced in the:
a. oviduct b. uterus c. vagina d. fimbria e. ovary
5. Which one of the following is not part of the male reproductive system?
A. cervix b. seminal vesicle c. epididymis d. prostate gland e. Cowpers gland
6. In the process called "ovulation":
a. a sperm fertilizes an egg b. an ovum is released from the ovary
c. a zygote becomes an embryo d. a follicle releases the hormone FSH
7. When an egg is released from the follicle during ovulation, the ruptured follicle becomes the:
a. seminiferous tubules b. corpus luteum c. embryo d. uterine lining e. cervix
8. Ovulation occurs when _____ is at its highest peak.
   A) FSH B) LH C) estrogen D) progesterone
9. What does estrogen seem to be responsible for?
   A) building up the uterine lining B) stimulating ovulation
   C) maintaining pregnancy D) all of the above
10. What is the primary hormone produced by the corpus luteum?
   A) FSH B) LH C) estrogen D) progesterone
11. When does menstruation occur?
   A) after an increase in estrogen B) after an increase in LH
   C) after an increase in progesterone D) after a decrease in progesterone
12. What is the first stage of human development called?
   A) zygote B) fetus C) embryo D) gastrula
13. Which of the following lists of terms relate to reproduction in both females and males?
A) follicles, gonads, FSH B) gonads, hormones, pituitary gland
C) hormones, vas deferens, estrogen D)cervix, secondary sex characteristics, testosterone

Answers

1.C 2.C 3.B 4.E 5.A 6.B 7B 8.C 9.A 10.D 11.D 12.A 13.B

Short Problems

1. a) What are identical twins?
   b) Explain how they are created.

Answer: a) Two individuals born at the same time with the same genetic makeup.
b) Identical twins result from the fertilization of a single egg by a single sperm cell, followed by a separation of the developing cells into two individuals.

2. Explain the purpose of high levels of progesterone in birth control pills.

Answer: High levels of progesterone prevent the release of FSH and LH from the pituitary gland. Decreasing levels of FSH and LH prevent more egg cells from being released. This prevents pregnancy.

3. Mary has an irregular menstrual cycle that averages 56 days. If her body releases one egg every cycle between the ages of 14 and 50, calculate how many eggs Mary's body will release in her lifetime.