Chapter 22 Reproduction Exam Study Questions

22.1 Overview

1. Define and understand these two terms
   a. Sex determination
   b. Sex differentiation

2. Figure 22.5
   a. A person has sex chromosomes XX is ________, and XY is ________.
   b. Testes are formed with the presence of this gene______, otherwise ____ are formed in a fetus from primary gonads.
   c. Precursor to male tract is called ______________. The development of this precursor is stimulated by the presence of this hormone ___________. _____ inhibits the development of the precursor to female reproductive tract.
   d. Precursor to female tract is called ______________. The development of this precursor is inhibited by these hormones___________ and ____.

22.2 The Male Reproductive System

1. Where are sperm produced inside of testes? __________

2. What are the functions of Leydig cells?

3. What are the functions of Sertoli cells?
   a. ______________
   b. ______________
   c. ______________
   d. ______________
   e. ______________
   f. ______________
   g. ______________

4. What are the functions of BTB?

5. Match the function of male reproductive functions.
Male reproductive components | Functions
--- | ---
**Primary organ** | **Testes** | Transport sperm and allow sperm to mature
**Reproductive tract** | **Epididymis** | Secrete citrate, zinc, PSA and enzymes
 | **vas deferens** | Produce gametes and testosterone
**Accessory glands** | **Seminal vesicles** | A pair of glands secrete viscous fluid with mucus
 | **Prostate gland** | Secrete alkaline fluid with fructose, proteins, and prostaglandins into ejaculatory duct
 | **Bulbourethral gland** | Copulation organ that transport sperm to a female body
**External genitalia** | **Penis** | Host testes outside the male body
 | **Scrotum** | Transport sperm and store sperm before ejaculation

6. **Hormonal regulation of reproduction in males**
   a. Hypothalamus secretes ___
   b. From anterior pituitary gland
      i. ______ stimulates sertoli cells to make ________.
      ii. FSH and _______ work together promote spermatogenesis.
      iii. LH reaches the targeted _______ cells to increase _______secretion.
   c. ____ suppresses the release of FSH.
   d. ____________ provides negative feedback function to inhibit the production of tropic hormones.

7. **List the functions of androgen or testosterone in males.**
   a. ____________________________
   b. ____________________________
   c. ____________________________
   d. ____________________________
   e. ____________________________
   f. ____________________________

8. **Comparison of spermatogenesis and oogenesis.**
<table>
<thead>
<tr>
<th>Spermatogenesis (Page 643)</th>
<th>Oogenesis (Page 648)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td></td>
</tr>
<tr>
<td>Number of gametes produced per gametogenesis</td>
<td></td>
</tr>
<tr>
<td>The timing of meiosis I</td>
<td></td>
</tr>
<tr>
<td>The timing of meiosis II</td>
<td></td>
</tr>
<tr>
<td>Hormones involved</td>
<td></td>
</tr>
</tbody>
</table>

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**22.3 The Female Reproductive System**
1. Match the functions of the female reproductive organs and accessory organs.
<table>
<thead>
<tr>
<th>Reproductive components</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Organ</td>
<td>Ovary</td>
</tr>
<tr>
<td>Reproductive tract</td>
<td>uterus</td>
</tr>
<tr>
<td></td>
<td>cervix</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>vagina</td>
</tr>
<tr>
<td></td>
<td>uterine tube (fallopian tubes or oviducts)</td>
</tr>
<tr>
<td>External Genitalia</td>
<td>vulva</td>
</tr>
</tbody>
</table>

2. List the functions of granulosa cells.
   a. ________________
   b. ________________
   c. ________________
   d. ________________
   e. ________________
   f. ________________

3. List the functions of estrogen during follicular phase and luteal phase.
   a. ________________
   b. ________________
   c. ________________
   d. ________________
   e. ________________
   f. ________________

4. Complete the blanks regarding the menstrual cycle.

<table>
<thead>
<tr>
<th>Phases of the Cycle</th>
<th>Describe the Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Ovarian Cycle</td>
<td>Cyclically structural and functional changes in ovaries. It is divided into two phases</td>
</tr>
<tr>
<td>1. _____________</td>
<td></td>
</tr>
<tr>
<td>2. _____________</td>
<td></td>
</tr>
<tr>
<td>The Uterine Cycle</td>
<td>Cyclically structural and functional changes in uterus. It is divided into three phases. It ours in concert with the ovarian cycle.</td>
</tr>
</tbody>
</table>
Phases of the Cycle | Describe the Events
--- | ---
1. ________  
   ________
2. ________  
   ________
3. ________  
   ________

5. What is ovulation and when does it happen?

6. What are the actions of progesterone?

7. Hormone control of the menstrual cycle (fill in the blanks with hormone names)
   a. The ovarian cycle
      i. ________ and ________ stimulate follicle growth and development
      ii. ________ surge triggers ovulation and development of corpus luteum in luteal phase.
      iii. (T/F) During late follicular phase the high level of estrogen is caused by positive feedback.
      iv. During luteal phase, corpus luteum secretes hormones: ________ and ________
   b. The uterine cycle
      i. Menstruation is triggered by decreased ________ and ________ as the corpus luteum degrades.
      ii. ________ stimulate development of uterine lining during proliferative phase.

22.4 Fertilization, Implantation, and Pregnancy
1. What are the functions of the placenta?
   a. __________________________
   b. __________________________
2. Placenta Hormones and Functions.

<table>
<thead>
<tr>
<th>Hormone</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Human chorionic gonadotropin (hCG)</td>
<td></td>
</tr>
<tr>
<td>b. Human chorionic somatomammotropin (hCS) or placental lactogen</td>
<td></td>
</tr>
<tr>
<td>c. Estrogen</td>
<td></td>
</tr>
<tr>
<td>d. Progesterone</td>
<td></td>
</tr>
</tbody>
</table>

3. Which placenta hormone is used for early pregnancy test? ________
This hormone, __________ prevents ovulation during the pregnancy by inhibiting GnRH, LH, and FSH release, preventing LH surge.

5. Fill in the name of the hormone that provides the specific function in female reproduction.

<table>
<thead>
<tr>
<th>Name of the Hormone</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prevention of ovulation during pregnancy</td>
</tr>
<tr>
<td></td>
<td>Stimulation of milk synthesis</td>
</tr>
<tr>
<td></td>
<td>Stimulating the milk ejection reflex</td>
</tr>
</tbody>
</table>

6. Regulation of hormone secretion in male (Figure 22.8) and female (Figure 22.18). Complete labels.