ANATOMY OF THE FEMALE REPRODUCTIVE SYSTEM

10. Identify the female structures described by inserting your responses in the answer blanks.

1. Chamber that houses the developing fetus
2. Canal that receives the penis during sexual intercourse
3. Usual site of fertilization
4. Erects during sexual stimulation
5. Duct through which the ovum travels to reach the uterus
6. Membrane that partially closes the vaginal canal
7. Primary female reproductive organ
8. Move to create fluid currents to draw the ovulated egg into the uterine (fallopian) tube
11. Figure 16–5 is a sagittal view of the female reproductive organs. First, label all structures on the figure provided with leader lines. Then select different colors for the following structures, and use them to color the coding circles and corresponding structures on the figure.

- Lining of the uterus, endometrium
- Muscular layer of the uterus, myometrium
- Pathway along which an egg travels from the time of its release to its implantation
- Ligament helping to anchor the uterus
- Structure producing female hormones and gametes
12. Figure 16–6 is a ventral view of the female external genitalia. Label the clitoris, labia minora, urethral orifice, hymen, mons pubis, and vaginal orifice on the figure. These structures are indicated with leader lines. Then color the homologue of the male penis blue, color the membrane that partially obstructs the vagina yellow, and color the distal end of the birth canal red.

![Figure 16–6]

**FEMALE REPRODUCTIVE FUNCTIONS AND CYCLES**

13. Using the key choices, identify the cell type you would expect to find in the following structures. Insert the correct term or letter response in the answer blanks.

**Key Choices**

<table>
<thead>
<tr>
<th>A. Oogonium</th>
<th>C. Secondary oocyte</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Primary oocyte</td>
<td>D. Ovum</td>
</tr>
</tbody>
</table>

1. Forming part of the primary follicle in the ovary
2. In the uterine tube before fertilization
3. In the mature, or Graafian, follicle of the ovary
4. In the uterine tube shortly after sperm penetration
14. Figure 16-7 is a sectional view of the ovary. First, identify all structures indicated with leader lines on the figure. Second, select different colors for the following structures, and use them to color the coding circles and corresponding structures on the figure.

- Cells that produce estrogen
- Glandular structure that produces progesterone
- All oocytes

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Figure 16-7

Third, in the space provided, name the event depicted as “Event A” on the figure. _______

Fourth, answer the following questions by inserting your answers in the spaces provided.

1. Are there any oogonia in a mature female's ovary? ________________________

2. Into what area is the ovulated cell released? ________________________________

3. When is a mature ovum (egg) produced in humans? _________________________

4. What structure in the ovary becomes a corpus luteum? ______________________

5. What are the four final cell types produced by oogenesis in the female? (Name the cell type and number of each.) ________________________________
6. How does this compare with the final product of spermatogenesis in males?

7. What happens to the tiny cells nearly devoid of cytoplasm ultimately produced during oogenesis?

8. Why?

9. What name is given to the period of a woman's life when her ovaries begin to become nonfunctional?

15. What is the significance of the fact that the uterine tubes are not structurally continuous with the ovaries? Address this question from both reproductive and health aspects.

16. The following statements deal with anterior pituitary and ovarian hormonal interrelationships. Name the hormone(s) described in each statement. Place your answers in the answer blanks.

1. Promotes growth of ovarian follicles and production of estrogen

2. Triggers ovulation

3. Inhibit follicle-stimulating hormone (FSH) release by the anterior pituitary

4. Stimulates luteinizing hormone (LH) release by the anterior pituitary

5. Converts the ruptured follicle into a corpus luteum and causes it to produce progesterone and estrogen

6. Maintains the hormonal production of the corpus luteum

17. Name four of the secondary sex characteristics of females. Place your answers in the spaces provided.
18. Use the key choices to identify the ovarian hormone(s) responsible for the following events. Insert the correct term(s) or letter(s) in the answer blanks.

**Key Choices**

A. Estrogens  
B. Progesterone

1. Lack of this (these) causes the blood vessels to kink and the endometrium to slough off (menses)
2. Causes the endometrial glands to begin the secretion of nutrients
3. The endometrium is repaired and grows thick and velvety
4. Maintains the myometrium in an inactive state if implantation of an embryo has occurred
5. Glands are formed in the endometrium
6. Responsible for the secondary sex characteristics of females

19. The following exercise refers to Figure 16-8 A-D.

On Figure 16-8A, the blood levels of two gonadotropic hormones (FSH and LH) of the anterior pituitary are indicated. Identify each hormone by appropriately labeling the blood level lines on the figure. Then select different colors for each of the blood level lines and color them in on the figure.

On Figure 16-8B, identify the blood level lines for the ovarian hormones, estrogens and progesterone. Then select different colors for each blood level line, and color them in on the figure.

On Figure 16-8C, select different colors for the following structures and use them to color in the coding circles and corresponding structures in the figure.

- Primary follicle
- Growing follicle
- Vesicular follicle
- Corpus luteum
- Ovulating follicle

On Figure 16-8D, identify the endometrial changes occurring during the menstrual cycle by color-coding and coloring the areas depicting the three phases of that cycle.

- Secretory stage
- Menses
- Proliferative stage
Figure 16-8
22. Figure 16–10 depicts early embryonic events (2° = secondary). In #1–5, identify the events, cell types, or processes referring to the figure. Then respond to question #6. Place your answers in the spaces provided.

1. Event A ____________________________

2. Cell resulting from event A ____________________________

3. Process B ____________________________

4. Embryonic structure B₁ ____________________________

5. Completed process C ____________________________

6. Assume that a sperm has entered a polar body instead of a 2° oocyte and their nuclei fuse. Why would it be unlikely for that “fertilized cell” to develop into an embryo?
23. Using the key choices, select the terms that are identified in the following descriptions. Insert the correct term or letter response in the answer blanks.

**Key Choices**

A. Amnion  
B. Chorionic villi  
C. Endometrium  
D. Fertilization  
E. Fetus  
F. Placenta  
G. Umbilical cord  
H. Zygote

1. The fertilized egg  
2. Secretes estrogen and progesterone to maintain the pregnancy  
3. Cooperate to form the placenta  
4. Fluid-filled sac, surrounding the developing embryo/fetus  
5. Attaches the embryo to the placenta  
6. Fingerlike projections of the blastocyst  
7. The embryo after 8 weeks  
8. The organ that delivers nutrients to and disposes of wastes for the fetus  
9. Event leading to combination of ovum and sperm "genes"

24. Explain why the corpus luteum does not stop producing its hormones (estrogens and progesterone) when fertilization has occurred.

25. The first “tissues” of the embryo’s body are the primary germ layers:

A. Ectoderm  
B. Mesoderm  
C. Endoderm

Indicate which germ layer gives rise to each of the following structures by placing the corresponding letter in the answer blank.

1. Heart and blood vessels  
2. Digestive system mucosa  
3. Brain and spinal cord  
4. Skeletal muscles  
5. Skin epidermis  
6. Bones  
7. Respiratory system mucosa  
8. Liver and pancreas
26. What two hormones are essential to initiate labor in humans?

27. 1. What hormone is responsible for milk production?

2. For milk ejection?

28. A pregnant woman undergoes numerous changes during her pregnancy—anatomical, metabolic, and physiological. Several such possibilities are listed below. Check (✓) all that are commonly experienced during pregnancy.

   ____ 1. Diaphragm descent is impaired  ____  7. Metabolic rate declines
   ____ 2. Breasts decline in size  ____  8. Increased mobility of GI tract
   ____ 3. Pelvic ligaments are relaxed by relaxin  ____  9. Blood volume and cardiac output increase
   ____ 4. Vital capacity decreases  ____ 10. Nausea, heartburn, constipation
   ____ 5. Lordosis  ____ 11. Dyspnea may occur

29. What are Braxton Hicks contractions, and why do they occur?

30. Name the three phases of parturition, and briefly describe each phase.

   1. 

   2. 

   3. 
36. A 28-year-old primagravida (in first pregnancy) has been in the first stage of labor for several hours. Her uterine contractions are weak, and her labor is not progressing normally. Since the woman insists upon a vaginal delivery, the physician orders that Pitocin (a synthetic oxytocin) be infused. What will the effect of Pitocin be? What is the normal mechanism by which oxytocin acts to promote birth?

37. A 38-year-old male is upset about his low sperm count and visits a “practitioner” who commonly advertises his miracle cures for sterility. In fact, the practitioner is a quack who treats conditions of low sperm count with mega-doses of testosterone. Although his patients experience a huge surge in libido, their sperm count is even lower after hormone treatment. Explain why.

38. Mr. and Mrs. John Cary, a young couple who had been trying unsuccessfully to have a family for years, underwent a series of tests with a fertility clinic to try to determine the problem. Mr. Cary was found to have a normal sperm count and the sperm morphology and motility are normal.

Mrs. Cary’s history sheet revealed that she had two episodes of PID during her early 20s, and the time span between successive menses ranged from 21 to 30 days. She claimed that her family was “badgering” her about not giving them grandchildren and that she was frequently despondent. A battery of hormonal tests was ordered, and Mrs. Cary was asked to perform cervical mucus testing and daily basal temperature recordings. Additionally, gas was blown through her uterine tubes to determine their patency. Her tubes proved to be closed and she was determined to be anovulatory. What do you suggest might have caused the closing of her tubes? Which of the tests done or ordered would have revealed her anovulatory condition?
39. A man swam in a cold lake for an hour and then noticed that his scrotum was shrunken and wrinkled. His first thought was that he had lost his testicles. What had really happened?

40. Mary is a heavy smoker and has ignored a friend’s advice to stop smoking during her pregnancy. On the basis of what you know about the effect of smoking on physiology, describe how Mary’s smoking might affect her fetus.

41. Mrs. Ginko’s Pap smear shows some abnormal cells. What possibility should be investigated?

42. Mrs. Weibel has just given birth to an infant with a congenital deformity of the stomach. She is convinced that a viral infection she suffered during the third trimester of her pregnancy is responsible. Do you think she is right? Why or why not?