AVS 222 - Reproduction
Quiz #2
2/18/99

Write your name on the BACK of this page.

1.) (4 pts) In class we discussed eight (8) general functions of the female reproductive tract. For example one function discussed was to provide nutrients to the young via the mammary gland after birth. List 4 other general functions of the female reproductive tract.

- Maintain pregnancy
- Produce progesterone
- Endocrine function
- Produce estrogen
- Give young place to develop

2.) (4 pts) From outside to inside list the four tissue layers of the ovary AND their functions.

- Germinai layer - epithelium - continuous with perinium, supports ovary
- Tunica Albuginea - structural support for ovary
- Cortex - location for follicle growth
- Medulla - provide blood/lymph

3.) (1 pt.) List 3 products that the ovary produces.

- Progesterone
- Estrogen
- Testosterone

4.) (1 pt) The Granulosa cells on the ovary produces estrogen, the hormone which induces "heat" or Estrus, and the Corpus Luteum produces the hormone of pregnancy, Progesterone.

Pre-Vet 00
Van Der Weel
Write your name on the BACK of this page.

1.) (4 pts) In class we discussed eight (8) general functions of the female reproductive tract. For example one function discussed was to provide nutrients to the young via the mammary gland after birth. List 4 other general functions of the female reproductive tract.

1. Transport sperm
2. Produce oocyte
3. Provide housing for fetus and embryo
4. Parity or birth

2.) (4 pts) From outside to inside list the four tissue layers of the ovary AND their functions.

- Germinal epithelium - protective outer sheath serves to protect the ovary
- Tuni<eia Albuginea - made up of connective tissue the supplies structure to the ovary
- Cortex - houses the follicles, ovum, Corpus luteum reverses in ovaries
- Medulla - supplies blood and lymph to ovary and removes waste from ovary

3.) (1 pt.) List 3 products that the ovary produces.

- Estrogen
- Oocytes (ovum)
- Progesterone

4.) (1 pt) The follicles (granulosa cells) on the ovary produces estrogen, the hormone which induces "heat" or estrus, and the Corpus luteum produces the hormone of pregnancy, progesterone.

Pre Vet 00
Van Derwel
Put your name on the back.

1. Name the paired organs which are responsible for the production of sperm.
   
   **Testis**

2. List 4 functions of the male.
   
   1. Produc sperm
   2. Detect females in Estrus
   3. Fertilize females
   4. Care for young (some species)

3. Name the long tubules within the testis where sperm are produced.
   
   **Seminiferous tubules**

4. List 4 stages of sperm development from least mature to most mature.
   
   1. Spermatogenesis
   2. Spermatocyte (Primary)
   3. Secondary Spermatocyte
   4. Spermatozoon

5. Describe the path (the ducts) a sperm takes from its point of production to the point where it mixes with seminal plasma in the pelvic urethra.

   Seminiferous tubules → Secret testis → efferent ductule → Vas deferens → Amulla

   **Capsula, Corpus, Cauda epididymis**

6. Name the 3 sections of the epididymis.
   
   **Caput, Corpus, Cauda**

7. At what point (what part of the tube or excurrent duct system) are the sperm considered mature and able to fertilize an egg.

   **Cauda epididymis**

8. The **retractor testes** muscle is found on the inner lining of the scrotum and is a smooth muscle responsible for thermoregulation of the testis.

9. List two ways the testes are cooled.

   1. Held away from body, blood vessels w/ blood cooler than body (cooled by > vasa deferentia plexus)

10. Name the cell type found between the seminiferous tubules responsible for testosterone production.

    **Leydig cells**
Put your name on the back.

1. Name the paired organs which are responsible for the production of sperm. 
   testes

2. List 4 functions of the male.
   1. Produce sperm
   2. Secret estrus
   3. Copulate and Fertilize ovum
   4. Responsibility post Copulation

3.) Name the long tubules within the testis where sperm are produced.
   seminiferous tubules

4.) List 4 stages of sperm development from least mature to most mature.
   1. Spermatogonium
   2. Primary spermatocyte
   3. Secondary spermatocyte
   4. Spermatozoon
   5. Spermatozoa

5.) Describe the path (the ducts) a sperm takes from its point of production to the point where it mixes with seminal plasma in the pelvic urethra.
   seminiferous tubules ➔ rete testes ➔ efferent ductules ➔ caput epididymis ➔ cauda epididymis ➔ corpus epididymis

6.) Name the 3 sections of the epididymis.
   caput, corpus, cauda

7.) At what point (what part of the tube or excurrent duct system) are the sperm considered mature and able to fertilize an egg.
   cauda epididymis

8.) The tunica dartos muscle is found on the inner lining of the scrotum and is a smooth muscle responsible for thermoregulation of the testis.

9.) List two ways the testes are cooled.
   Through the pampiniform plexus — counter heat exchanger
   Through sweat glands

10.) Name the cell type found between the seminiferous tubules responsible for testosterone production.
    Leydig cells
Please write your name on the back of the page. Read questions carefully.

1.) (Circle the correct response: 1 pt) In mammals, the **male/female** is the heterogametic sex. In birds, the **male/female** is the homogametic sex.

2.) (1 pt) In females the inactivated X chromosome in somatic cells is called the **Barr body**.

3.) (1 pt) What is a true hermaphrodite?
   - has both male and female gonads or parts of both such as ovaries, testes or ovotestes

4.) (1 pt) In cattle a female born co-twin to a male is called a **Freemartin**.

5.) (1 pt) Presence of **H-Y** antigen, or the **Sry** gene can be used to accurately identify male embryos.

6.) (1 pt) The **Sertoli** cells in the developing testes produce **Mullerian duct inhibiting hormone** which causes regression of the Mullerian ducts.

7.) (1 pt) The Mullerian ducts develop into the **ovary**, **uterus**, **cervix**, and **anterior portion of vagina**.

8.) (1 pt) The Wolffian ducts develop into the **epididymis**, **vas deferens** and **semen vesicles**.

9.) (1 pt) The **Sry** gene produces the protein **Testis determining factor** which directs development of the male testes.

10.) (1 pt) The **Primordial germ cells** migrate from the yolk sac to the **genital ridge**.

Bonus (1 pt)

Name two androgens important in male sexual development and function.

1. **Testosterone**
2. **5α dihydro testosterone**
Please write your name on the back of this page. Read the questions carefully.

1.) In order for a sperm to be able to fertilize an egg it must undergo two changes during its time the female reproductive tract. What are these two changes AND in which order do they occur.
   1. Capacitation [1st]
   2. Acrosomal reaction [2nd]

2.) Name three mechanisms which reduce the incidence of polyspermy. Two are egg-mediated and one is not.
   1. Length of reproductive tract
   2. Vitelline Block
   3. Zona pellucida block

3.) The acrosome enzyme acrosin is important for allowing the sperm to penetrate the zona pellucida.

4.) The term syngamy refers to the fusion of the male and female pronuclei to create a 2N zygote.

5.) Following fertilization, the zygote begins to undergo mitotic division. Each of the cells is then referred to as a blastomere.

6.) During the process of compaction, the cells of the morula develop tight connections which allows them to establish polarity (top and bottom). The cells of the morula then pump fluid into the center of the morula and create a fluid-filled space called a blastocoele.

7.) Once the developing embryo has acquired a fluid-filled space it is referred to as a blastocyst.

8.) During the early blastocyst stage of embryo development there are two distinct cell types, trophoblast cells which go on to form the placenta and inner mass cells which form the embryo.