Chapter 28: Reproductive System

Multiple Choice

1. The location of the testes and epididymides in the scrotum
   A) allows more room for other organs in the abdominal cavity.
   B) keeps these organs close to the penis.
   C) provides a temperature that is suitable for normal sperm development.
   D) keeps them isolated from the accessory glands of the system.
   E) helps to protect them.
   Answer: c
   Level: 2

2. Contraction of the cremaster and dartos muscles
   A) causes the epididymis to shrink.
   B) increases during exercise.
   C) pull the testes closer to the body.
   D) is responsible for ejaculation.
   E) causes the penis to become erect.
   Answer: c
   Level: 2

3. Optimum temperature for sperm production is 3 degrees cooler than body temperature.
   In which of the following locations would the testes produce the most sperm?
   A) scrotal sac
   B) pelvic cavity
   C) abdominal cavity
   D) vas deferens
   E) inguinal canal
   Answer: a
   Level: 1

4. Which of the following structures is located within the perineum?
   A) dartos
   B) seminal vesicles
   C) femoral triangle
   D) urogenital triangle
   E) navel
   Answer: d
   Level: 1

5. Sperm are produced in the
   A) rete testis.
   B) efferent ductules.
C) seminiferous tubules.
D) interstitial cells.
E) vas deferens
Answer: c
Level: 1

6. The thick white capsule that covers each testes is called the
A) raphe.
B) tunica adventitia.
C) tunica albuginea.
D) Leydig capsule.
E) tunica alba
Answer: c
Level: 1

7. Which of the following hormones is produced by the testis?
A) testosterone
B) interstitial cell-stimulating hormone (ICSH)
C) gonadotropin-releasing hormone (GnRH)
D) follicle-stimulating hormone (FSH)
E) luteinizing hormone (LH)
Answer: a
Level: 1

8. The interstitial cells or Leydig cells
A) produce sperm.
B) form the wall of the rete testis.
C) cover the testis with a while tunic.
D) secrete seminal fluid.
E) secrete testosterone.
Answer: e
Level: 1

9. The opening in the abdominal wall through which the testes descend is the
A) spermatic cord.
B) gubernaculum.
C) inguinal canal.
D) process vaginalis.
E) perineal opening.
Answer: c
Level: 1

10. Male infants can be born with an undescended testis. This means that the testis
A) lacks hormonal cells.
B) covers the top of the scrotum.
C) has lost its blood supply.
D) remains in the abdominopelvic cavity.
E) has not properly formed.
Answer: d
Level: 1

11. The Sertoli cells
A) mature to form sperm cells.
B) produce testosterone.
C) provide nourishment for development of sperm.
D) cover and protect most of the testes.
E) produce seminal fluid.
Answer: c
Level: 1

12. The blood-testes barrier
A) feeds Sertoli cells.
B) keeps blood from engorging the testis.
C) is formed by the primary spermatocytes.
D) isolates sperm cells from the immune system.
E) nourishes the developing spermatozoa.
Answer: d
Level: 1

13. Which of the following substances found in Sertoli cells may be the active hormones that promote sperm cell formation?
A) IgA and IgG
B) sustentaculum and gubernaculum
C) dihydrotestosterone and estradiol
D) androgen-binding protein and testosterone
E) estrogen and progesterone
Answer: c
Level: 1

14. Which of the following cell types is formed at the end of the first meiotic division?
A) spermatid
B) spermatogonia
C) primary spermatocyte
D) secondary spermatocyte
E) spermatozoa
Answer: d
Level: 1

15. Which of the following cell types is diploid?
A) spermatid
B) mature sperm
C) primary spermatocyte
D) secondary spermatocyte
E) spermatozoa
Answer: c
Level: 1

16. Which of the following structures would be found in the spermatic cord?
A) epididymis
B) ductus deferens
C) seminal vesicle
D) ejaculatory duct
E) interstitial cells
Answer: b
Level: 1

17. Which portion of the sperm cell is most involved with penetration of the female sex cell?
A) nucleus
B) acrosome
C) midpiece
D) tail
E) centriole
Answer: b
Level: 2

18. Sperm are produced in the _____ and complete maturation in the _____.
A) epididymis; testes
B) ductus deferens; epididymis
C) seminiferous tubules; prostate gland
D) seminiferous tubules; epididymis
E) seminiferous tubules; vas deferens
Answer: d
Level: 2

19. A primary spermatocyte is a diploid cell that gives rise to two secondary spermatocytes after the first meiotic division. The primary spermatocyte has
A) 92 chromosomes.
B) 46 chromosomes.
C) 23 chromosomes.
D) 13 chromosomes.
E) no chromosomes.
Answer: b
Level: 2

20. Which of the following is mismatched?
A) ductus deferens - vas deferens
B) epididymis - site of sperm maturation
C) spermatic cord - passes through inguinal canal
21. Smooth muscle contractions help to propel sperm in the
   A) rete testis.
   B) ductus deferens.
   C) seminal receptacle.
   D) seminiferous tubule.
   E) ejaculatory duct.
   Answer: b
   Level: 1

22. The duct from the seminal vesicle joins the ductus deferens to form the
   A) prostatic urethra.
   B) epididymis.
   C) sperm cord.
   D) ejaculatory duct.
   E) spongy urethra.
   Answer: d
   Level: 1

23. Arrange the following structures in the order sperm would pass through them from the
    seminiferous tubules to the urethra.
    1. ductus deferens (vas deferens)
    2. efferent ductules
    3. epididymis
    4. ejaculatory duct
    5. rete testis
   A) 5, 3, 2, 1, 4
   B) 3, 2, 4, 1, 5
   C) 3, 4, 2, 1, 5
   D) 5, 2, 4, 3, 1
   E) 5, 2, 3, 1, 4
   Answer: e
   Level: 2

24. The ductus deferens
   A) stores sperm until ejaculation.
   B) travels through the bladder.
   C) ascends the abdominal cavity along the posterior side of the kidney.
   D) passes through the inguinal canal and enters the pelvic cavity.
   E) passes just beneath the skin to the penis.
   Answer: d
   Level: 2
25. The male urethra
A) has numerous mucous-secreting glands.
B) extends through the length of the penis.
C) is lined with ciliated cuboidal epithelium.
D) extends from the prostate gland to the ductus deferens.
E) is shorter than the female urethra.
Answer: b
Level: 1

26. In males, both urine and male reproductive fluids travel through the
A) ureter.
B) urethra.
C) epididymis.
D) spermatic cord.
E) ductus deferens
Answer: b
Level: 1

27. The longest portion of the male urethra is the
A) prostatic portion.
B) membranous portion.
C) spongy portion.
D) ductile portion.
E) glans penis portion.
Answer: c
Level: 1

28. The penis consists of _____ columns of erectile tissue.
A) two
B) three
C) four
D) five
E) six
Answer: b
Level: 1

29. Which of the following is mismatched?
A) prepuce - skin that covers the glans penis
B) corpora cavernosa - forms the foreskin
C) glans penis - contains external urethral opening
D) corpus spongiosum - expands to form the glans penis
E) membranous urethra - between prostatic and spongy urethra
Answer: b
Level: 1
30. Circumcision is the surgical removal of the
   A) prepuce.
   B) crus penis.
   C) glans penis.
   D) corpora cavernosa.
   E) bulb of penis.
   Answer: a
   Level: 1

31. Erection of the penis occurs when
   A) the pubic bones move together.
   B) the bulbourethral muscles contract.
   C) lymphatic fluid accumulates in the glans penis.
   D) penile erectile tissue becomes engorged with blood.
   E) smooth muscle contraction occurs in ductus deferens.
   Answer: d
   Level: 1

32. Which of the following statements is false?
   A) The seminal vesicles open into the membranous urethra.
   B) The prostate gland surrounds the prostatic urethra and ejaculatory ducts.
   C) The bulbourethral glands enter the spongy urethra at the base of the penis.
   D) The prostate gland contains smooth muscle partitions covered with columnar epithelium.
   E) The seminal vesicles are sac-shaped glands located next to the ampullae of the ductus deferentia.
   Answer: a
   Level: 2

33. The accessory glands located near the membranous urethra are the
   A) seminal vesicles.
   B) inguinal glands.
   C) bulbourethral glands.
   D) seminal receptacles.
   E) penial glands.
   Answer: c
   Level: 1

34. Semen is
   A) produced solely by the testis.
   B) a vaginal secretion needed to activate sperm.
   C) sperm cells plus the secretions of accessory glands.
   D) responsible for engorgement of erectile tissue of the penis.
   E) composed only of sperm cells.
   Answer: c
   Level: 1
35. Most of the seminal fluid is produced
A) by the testes.
B) by the seminal vesicles.
C) by the prostate gland.
D) by the bulbourethral glands.
E) by the ejaculatory duct.
Answer: b
Level: 1

36. Discharge of semen into the prostatic urethra is called
A) erection.
B) emission.
C) ejaculation.
D) ovulation.
E) ejection.
Answer: c
Level: 1

37. The forceful expulsion of semen from the urethra caused by contraction of smooth muscle in the urethra and skeletal muscle surrounding the base of the penis is called
A) ejaculation.
B) neutralization.
C) physiological contracture.
D) emission.
E) orgasm.
Answer: a
Level: 1

38. Which of the following glands is correctly matched with its function?
A) seminal vesicles - provide nutrients for sperm
B) prostate - lubricates the penis during intercourse
C) bulbourethral glands - produce milky, alkaline fluid
D) testes - produce most of the semen
E) prostate - contributes most of the fluid
Answer: a
Level: 1

39. Given the following glands, choose the arrangement that represents the order in which the glands release their secretions to form semen.
1. prostate gland
2. bulbourethral glands
3. seminal vesicles
A) 1, 2, 3
B) 2, 1, 3
C) 3, 1, 2
D) 3, 2, 1
40. Which of the following substances found in semen is mismatched with its function?
A) fructose - nourishes sperm
B) mucous - lubricates urethra
C) fibrinogen - transient coagulation of semen
D) prostaglandins - cause urethral contractions
E) prostaglandins - cause uterine contractions
Answer: d
Level: 2

41. Which of the following substances are found in the secretions of the prostate gland?
A) mucous and fibrinogen
B) fructose and mucous
C) fibrinolysin and clotting factors
D) prostaglandins and sperm
E) acid and mucous
Answer: c
Level: 1

42. The secretions produced by the prostate gland
A) are acidic.
B) contain fructose.
C) contain mucous.
D) constitute about 30% of the semen.
E) constitute about 90% of the semen.
Answer: d
Level: 1

43. A blood test for the prostate-specific antigen (PSA) is useful in the diagnosis of
A) prostatitis.
B) prostatic atrophy.
C) prostatic cancer.
D) prostatic infection.
E) urinary tract infection.
Answer: c
Level: 1

44. A pituitary tumor interferes with FSH secretion. How would this affect him?
A) He would develop a feminine body contour.
B) He would not produce sperm.
C) He would have an erection.
D) There would be no effect as FSH is found only in females.
E) He would produce too many sperm.
Answer: b
Level: 3

45. Luteinizing hormone (LH) binds to Leydig cells and
A) inhibits Sertoli cells.
B) promotes sperm cell production by the Leydig cells.
C) decreases testosterone production by the Leydig cells.
D) stimulates GnRH levels to increase in the testes.
E) increases testosterone production by the Leydig cells.
Answer: c
Level: 2

46. A lack of testosterone production before birth would
A) inhibit normal development of male reproductive structures.
B) inhibit anterior pituitary secretions.
C) inhibit hypothalamus development.
D) inhibit FSH secretion from the anterior pituitary.
E) have no effect.
Answer: a
Level: 2

47. Once GnRH is released from the hypothalamus and enters the hypothalamoshypophyysal portal system,
A) testosterone is released from the anterior pituitary.
B) the Leydig cells produce inhibin.
C) estrogen production increases.
D) FSH and LH secretion will occur.
E) it will inhibit FSH and LH secretion.
Answer: d
Level: 2

48. Which of the following hormones stimulates the synthesis of testosterone by the fetal testes?
A) human chorionic gonadotropin (HCG)
B) follicle-stimulating hormone (FSH)
C) gonadotropin-releasing hormone (GnRH)
D) luternizing hormone releasing hormone (LH-RH)
E) estrogen.
Answer: a
Level: 1

49. The major factor controlling the onset of puberty in males is
A) a decrease in GnRH levels.
B) the production of testosterone by the testes.
C) the ability of the pituitary to secrete FSH and LH.
D) the hypothalamus becoming less sensitive to the inhibitory effects of androgens.
50. Which of the following statements concerning testosterone is true?
   A) It prevents hair loss in pattern baldness.
   B) It promotes atrophy of the larynx.
   C) It can lead to an increase in muscle mass.
   D) It causes the skin and hair to soften.
   E) It decreases metabolic rate in males.
   Answer: c
   Level: 1

51. Which of the following effects on the body cannot be attributed to testosterone?
   A) enlargement of male genitalia
   B) growth of pubic, axillary, and facial hair
   C) hypertrophy of the larynx
   D) increased calcium excretion
   E) rapid bone growth
   Answer: d
   Level: 1

52. After puberty, GnRH stimulates LH and FSH release when
   A) GnRH levels are chronically elevated.
   B) GnRH is released in frequent pulses or surges.
   C) GnRH levels remain at the same constant level.
   Answer: b
   Level: 1

53. Which of the following hormones would decrease if an adult male were castrated (testes removed)?
   A) GnRH
   B) FSH
   C) LH
   D) testosterone
   E) ADH
   Answer: d
   Level: 2

54. Following ejaculation, a phase called resolution occurs. During resolution
   A) a second ejaculation occurs.
   B) a feeling of satisfaction occurs.
   C) erection of the penis is maintained.
   D) sperm production increases.
   E) orgasm occurs.
   Answer: b
Level: 1

55. Erection and ejaculation can be initiated by
A) manual stimulation of the penis.
B) contraction of smooth muscle.
C) impulses from the cerebellum.
D) increased blood levels of testosterone.
E) increased levels of LH and FSH
Answer: a
Level: 1

56. Which of the following events occurs in an erection?
A) vasoconstriction of arteries leading to erectile tissue of penis
B) engorgement of erectile tissue of penis with blood
C) dilation of venules leading from erectile tissue of penis
D) relaxation of internal sphincter of urinary bladder
E) decrease of blood flow to the penis.
Answer: b
Level: 2

57. Impotence occurs when
A) the erectile tissues of the penis fill with blood.
B) semen accumulates in the urethra.
C) an erection cannot be achieved or maintained.
D) semen moves out of the urethra.
E) sperm cell production decreases.
Answer: c
Level: 1

58. Arrange the following events in the correct sequence.
1. ejaculation
2. emission
3. erection
A) 1, 2, 3
B) 3, 1, 2
C) 3, 2, 1
D) 1, 3, 2
E) 2, 3, 1
Answer: c
Level: 2

59. Arrange the following events in correct sequence:
1. inflation and rigidity of erectile tissue
2. arteries supplying blood to erectile tissue dilate
3. blood fills erectile tissue sinusoids and compresses veins
A) 1, 2, 3
60. Which of the following events in the male sex act occurs last and results in ejaculation?
A) peristaltic contractions of the ductus deferens
B) contractions of skeletal muscle at the base of the penis
C) constriction of the internal sphincter of the urinary bladder
D) release of secretions from the seminal vesicles and the prostate gland
E) semen accumulates in the prostatic urethra
Answer: b
Level: 2

61. The ovaries and uterus are held in position within the pelvis by bands of tissue called
A) follicles.
B) muscles.
C) endometrium.
D) ligaments.
E) tendons.
Answer: d
Level: 1

62. The ovary is attached to the superior margin of the uterus by the
A) mesovarium.
B) broad ligament.
C) ovarian ligament.
D) suspensory ligament.
E) round ligament.
Answer: c
Level: 1

63. The ovary is surrounded by a layer of fibrous connective tissue called the
A) mesovarium.
B) tunica albuginea.
C) peritoneum.
D) medulla.
E) tunica alba.
Answer: b
Level: 1

64. Of the two million primary oocytes in the ovaries at birth, only about _____ are ovulated.
A) 40
B) 400
65. A primary oocyte with a single layer of granulosa cells is most appropriately called
   A) a primordial follicle.
   B) a secondary follicle.
   C) a mature follicle.
   D) the corpus luteum.
   E) a graafian follicle.
   Answer: b
   Level: 1

66. A primary follicle contains
   A) vesicles.
   B) an antrum.
   C) several layers of granulosa cells.
   D) a mature egg.
   E) the theca.
   Answer: c
   Level: 1

67. As a secondary follicle enlarges,
   A) the granulosa cells are replaced with fluid.
   B) the secondary oocyte divides by mitosis.
   C) a theca or capsule is formed around it.
   D) the zona pellucida becomes thinner.
   E) the fluid within it is reduced.
   Answer: c
   Level: 1

68. In a mature follicle, the oocyte lies in a mass of follicular cells called the
   A) theca interna.
   B) zona pellucida.
   C) granulosa.
   D) cumulus mass.
   E) theca externa.
   Answer: d
   Level: 1

69. A follicle containing a secondary oocyte and a single fluid-filled antrum is called a ______
    follicle.
   A) primary
   B) graafian or mature
C) secondary  
D) primordial  
E) tertiary  
Answer: b  
Level: 1

70. The release of the secondary oocyte from the ovary is called  
A) ovulation.  
B) fertilization.  
C) sporeulation.  
D) implantation.  
E) oocyte release.  
Answer: a  
Level: 1

71. Which of the following is produced in the ovary and then leaves the ovary?  
A) testosterone  
B) corpus luteum  
C) secondary oocyte  
D) FSH  
E) menstrual blood  
Answer: c  
Level: 1

72. The secondary oocyte completes the second meiotic division when  
A) the mature follicle ruptures.  
B) it is penetrated by a sperm cell.  
C) it is implanted in the uterus.  
D) it receives both estrogen and progesterone.  
E) ovulation occurs.  
Answer: b  
Level: 2

73. Fertilization occurs when the  
A) oocyte ruptures from the ovary.  
B) oocyte is implanted in the uterus.  
C) sperm head enters the secondary oocyte.  
D) sperm attach to the secondary oocyte in the fallopian tube.  
E) sperm enter vagina.  
Answer: c  
Level: 2

74. "Zygote" is the term used to describe the  
A) graafian oocyte.  
B) primary oocyte.  
C) secondary oocyte.
D) fertilized oocyte.
E) sperm just before fertilization.
Answer: d
Level: 1

75. Follicles in the ovary that are never ovulated
A) degenerate.
B) become the corpus albicans.
C) form secondary follicles.
D) undergo and complete meiosis in the ovary.
E) proliferate.
Answer: a
Level: 1

76. The corpus luteum is a gland that
A) forms from a graafian follicle after ovulation.
B) secretes progesterone.
C) degenerates into a zygote if pregnancy does not occur.
D) releases the secondary oocyte.
E) secretes estrogen.
Answer: b
Level: 1

77. Which of the following follicular stages is the last to appear?
A) corpus albicans
B) corpus luteum
C) primary follicle
D) mature follicle
E) graafian follicle
Answer: a
Level: 2

78. Which of the following statements concerning the uterus is true?
A) The inferior portion is the cervix.
B) The isthmus separates the body and the fundus.
C) The fundus forms the major portion of this organ.
D) The uterine wall is composed of four layers.
E) The cervical canal is in the superior portion of the uterus.
Answer: a
Level: 1

79. Trace the pathway of an egg as it passes through the uterine tube: 1. ampulla
2. ostium
3. infundibulum
4. isthmus
A) 1, 2, 3, 4
B) 2, 4, 1, 3  
C) 3, 4, 1, 2  
D) 2, 3, 1, 4  
E) 3, 2, 1, 4  
Answer: d  
Level: 2

80. A Pap test is used to detect  
A) pregnancy.  
B) the time of ovulation.  
C) cervical cancer.  
D) a prolapsed uterus.  
E) ovarian cancer.  
Answer: c  
Level: 1

81. The cervix is a portion of the  
A) vagina.  
B) external genitalia.  
C) oviduct.  
D) uterine tube.  
E) uterus.  
Answer: e  
Level: 1

82. Which of the following statements concerning the uterine tube is true?  
A) The outer layer of the tube is formed by the ampulla.  
B) The oocyte is moved along the tube by peristaltic contractions of the muscular layer.  
C) The opening of the uterine tube is the mesosalpinx.  
D) The portion of the uterine tube closest to the uterus is the infundibulum.  
E) Fimbria are associated with the lining of the tube.  
Answer: b  
Level: 2

83. The layer of the uterine wall that is shed during menstruation is the  
A) perimetrium.  
B) myometrium.  
C) hymen.  
D) endometrium.  
E) vasometrium.  
Answer: d  
Level: 1

84. Which of the following pairs is correctly matched?  
A) broad ligaments - help support the uterus  
B) cervix - lined with rugae
C) basal layer - layer of endometrium closest to uterine cavity
D) perimetrium - muscular coat of uterus
E) endometrium - connective tissue layer
Answer: a
Level: 1

85. Which of the following is a function of the vagina?
A) oocyte production
B) reception of penis during intercourse
C) site of fertilization
D) production of estrogen
E) female hormone secretion
Answer: b
Level: 1

86. Which of the following portions of the vulva is most superior?
A) clitoris
B) mons pubis
C) vestibule
D) labia majora
E) labia minora
Answer: b
Level: 1

87. Which of the following pairs is mismatched?
A) clitoris - erectile tissue
B) labia minora - unite anteriorly to form the prepuce
C) vestibular glands - maintain moistness of vestibule
D) mons pubis - vaginal orifice
E) pudendal cleft - space between labia majora
Answer: d
Level: 1

88. Both the vagina and the urethra open into a space called the
A) urogenital sinus.
B) pudendal cleft.
C) vestibule.
D) prepuce.
E) mons pubis.
Answer: c
Level: 1

89. The secretory sacs of the mammary glands are known as the
A) follicles.
B) alveoli.
90. Frequently during childbirth, an episiotomy is performed. In this procedure the ____ is cut.
A) vagina
B) perineum
C) labia majora
D) labia minora
E) moans pubis
Answer: b
Level: 1

91. Which of the following statements concerning the female mammary glands is true?
A) They are modified sweat glands.
B) They are the organs of milk production.
C) They may contain large amounts of adipose tissue.
D) They are attached to the pectoralis major muscle by Cooper's ligaments.
E) all of the above
Answer: e
Level: 2

92. Puberty in a female is characterized by
A) fat deposition in the breasts and around the hips.
B) increased muscle mass, especially in the hips.
C) growth of facial hair.
D) closure of the uterine tubes.
E) growth of chest hair.
Answer: a
Level: 1

93. Menarche refers to
A) monthly ovulation.
B) enlargement of the breasts.
C) an increase in the sexual drive.
D) the first episode of menstrual bleeding.
E) the end of the menstrual cycle.
Answer: d
Level: 1

94. The average menstrual cycle is about ___ days long; ovulation occurs on about day ___.
A) 30; 24
95. The follicular phase of the menstrual cycle is characterized by
   A) ovulation.
   B) rapid development of ovarian follicles.
   C) formation of the corpus luteum.
   D) high progesterone levels.
   E) maturation of and secretion by uterine glands.
   Answer: b
   Level: 1

96. The menstrual cycle can be divided into three continuous phases. Starting from the first
day of the cycle, their consecutive order is
   A) menses, proliferative, secretory.
   B) menses, secretory, proliferative.
   C) secretory, menses, proliferative.
   D) proliferative, menses, secretory.
   E) secretory, proliferative, menses.
   Answer: a
   Level: 1

97. One hormone responsible for initiating the development of follicles is
   A) HCG.
   B) progesterone.
   C) FSH.
   D) estrogen.
   E) LH.
   Answer: c
   Level: 1

98. The LH surge initiates
   A) menses.
   B) ovulation.
   C) fertilization.
   D) the second trimester of pregnancy.
   E) follicle development.
   Answer: b
   Level: 1

99. Which of the following events in the menstrual cycle occur at the same time?
   A) maximal LH secretion and menstruation (menstrual flow)
B) early follicular development in the ovaries and maximum thickening of the uterus
C) ovulation and menstruation (menstrual flow)
D) uterine wall begins to thicken and increased estrogen production by the follicles
E) proliferation and secretion
Answer: d
Level: 2

100. Shortly after ovulation,
A) the granulosa cells become corpus luteum cells.
B) estrogen increases but progesterone decreases.
C) the level of LH rises even more than before ovulation.
D) GnRH receptors upregulate.
E) corpus luteum degenerates.
Answer: a
Level: 1

101. The hypothalamic hormone that regulates both male and female reproductive cycles is
A) FSH.
B) ICSH.
C) GnRH.
D) LH.
E) Oxytocin.
Answer: c
Level: 2

102. Which of the following events is caused by LH?
A) stimulation of theca interna cells to produce androgens
B) stimulation of granulosa cells to convert androgens to estradiol
C) increase LH receptors in granulosa cells
D) menstrual
E) oxytocin is released
Answer: a
Level: 2

103. FSH
A) stimulates theca interna cells to produce androgens.
B) primarily effects granulosa cells.
C) increases progesterone production.
D) inhibits LH.
E) stimulates the uterus.
Answer: b
Level: 1

104. FSH can make the follicle cells more sensitive to LH by increasing
A) GnRH production.
B) GnRH receptors.
C) LH receptors.
D) theca cells.
E) estrogen receptors.
Answer: c
Level: 2

105. The androgens produced by the theca interna cells are converted to estrogen by
A) corpus luteal cells.
B) FSH.
C) granulosa cells.
D) GnRH.
E) primary oocyte.
Answer: c
Level: 2

106. The gradual increase in estrogen secretion during the follicular phase is the result of
A) declining FSH levels.
B) granulosa cells converting androgens to estrogen.
C) positive feedback on the anterior pituitary.
D) an LH surge.
E) luteal development.
Answer: b
Level: 2

107. Which of the listed events occurs last?
A) GnRH secretion is stimulated.
B) FSH/LH positive-feedback loops produce a series of FSH/LH surges.
C) Ovulation occurs.
D) Estrogen produced by theca interna cells increases.
E) FSH and LH levels increase.
Answer: c
Level: 2

108. The hormone HCG is necessary to
A) form the corpus luteum.
B) cause the endometrium to proliferate.
C) stimulate primary oocytes to divide.
D) keep the corpus luteum from degenerating.
E) destroy the corpus luteum.
Answer: d
Level: 2

109. Which of the following events happens after ovulation?
A) Progesterone production by follicles declines.
B) A negative feedback effect on GnRH.
C) LH and FSH levels continue to increase.
D) GnRH receptors upregulate.  
E) A positive feedback effect on GnRH.  
Answer: b  
Level: 2

110. Progesterone  
A) increases fallopian tube motility.  
B) causes uterine muscle contractions.  
C) causes ovulation.  
D) causes cellular hypertrophy in the endometrium.  
E) causes cellular degeneration in the endometrium.  
Answer: d  
Level: 2

111. During the secretory phase of the menstrual cycle, you would normally expect  
A) that the endometrium is just beginning development.  
B) to find a follicle that is ready to ovulate.  
C) the highest levels of progesterone that occur during the menstrual cycle.  
D) the spiral glands to first appear.  
E) the lowest levels of progesterone.  
Answer: c  
Level: 2

112. Normally, menstruation occurs when  
A) blood levels of estrogen increase and progesterone levels decrease rapidly.  
B) blood levels of estrogen and progesterone increase rapidly.  
C) blood levels of FSH decrease rapidly.  
D) the corpus luteum secretes estrogen.  
E) blood levels of both female hormones decrease rapidly.  
Answer: e  
Level: 1

113. Menstrual cramps are most commonly caused by  
A) increased FSH levels.  
B) increased estrogen secretion by the ovary.  
C) increased prostaglandin secretions.  
D) increased HCG hormone release.  
E) a decreased inflammatory response in the endometrium.  
Answer: c  
Level: 2

114. Which of the following statements is false?  
A) Estrogen causes endometrial cells to proliferate.  
B) After ovulation, the endometrium becomes thicker.  
C) Rising progesterone levels cause the myometrium to contract.  
D) The uterine cycle makes the endometrium a hospitable environment for implantation.
E) The endometrium receives the trophoblast.
Answer: c
Level: 2

115. During the female sex act,
A) the clitoris becomes engorged with blood.
B) vaginal mucoid secretions are reduced.
C) vaginal, uterine, and perineal muscles relax.
D) an orgasm always occurs to insure fertilization.
E) an orgasm always occurs.
Answer: a
Level: 1

116. Sexual drive in females
A) is dependent on hormones.
B) can be affected by psychological factors.
C) is influenced by androgens that affect the hypothalamus.
D) A, B, C
E) none of the above
Answer: d
Level: 1

117. Assume a couple has just completed intercourse and sperm have been deposited in the woman's reproductive tract. Trace the pathway of the sperm through the female reproductive tract to the point where fertilization will most likely occur.
1. cervix
2. fallopian tubes
3. cavity of uterus
4. vagina
A) 1, 2, 3, 4
B) 4, 1, 3, 2
C) 4, 3, 1, 2
D) 4, 3, 2, 1
E) 1, 3, 2, 4
Answer: b
Level: 2

118. The ovum is viable for ____ hours following ovulation.
A) 8
B) 12
C) 24
D) 36
E) 48
Answer: c
Level: 1
119. Spermatozoa may remain viable in the female reproductive tract for as long as
   A) 24 hours.
   B) 48 hours.
   C) 72 hours.
   D) 96 hours.
   E) 144 hours.
   Answer: e
   Level: 1

120. Fertilization can only occur
   A) if orgasms occur in both the male and female.
   B) when a sperm cell penetrates a secondary oocyte.
   C) when there is no menstrual flow.
   D) after oxytocin is released from the hypothalamus.
   E) on day 14 of the cycle.
   Answer: b
   Level: 1

121. Fertilization usually occurs in the _____ while fetal development occurs in the _____.
   A) uterus, vagina
   B) uterine tube, uterus
   C) uterine tube, fimbriae
   D) vagina, uterus
   E) ovary, uterus
   Answer: b
   Level: 2

122. The corpus luteum
   A) degenerates into the corpus albicans if pregnancy does not occur.
   B) is absolutely necessary during the first three months of pregnancy.
   C) produces mostly progesterone, but also some estrogen.
   D) A and C
   E) A, B, C
   Answer: e
   Level: 2

123. The placenta produces both
   A) estrogen and progesterone.
   B) progesterone and prolactin.
   C) prolactin and FSH.
   D) androgens and estrogens.
   E) oxytocin and prolactin.
   Answer: a
   Level: 1

124. Which of the following hormones is detected by over-the-counter pregnancy kits?
A) progesterone
B) estrogen
C) prolactin
D) human chorionic gonadotropin
E) oxytocin
Answer: d
Level: 1

125. Implantation
A) occurs prior to fertilization.
B) normally occurs in the uterus.
C) assists sperm motility in the uterus.
D) occurs in the vagina.
E) occurs in the cervix.
Answer: b
Level: 1

126. In an ectopic pregnancy,
A) no fertilization occurs.
B) implantation does not occur in the uterus.
C) a fetus never develops.
D) no placenta forms.
E) implantation occurs in the uterus.
Answer: b
Level: 2

127. The ovarian follicles become less sensitive to FSH and LH. The levels of estrogen and progesterone decrease, while the levels of FSH and LH increase. This describes
A) pregnancy.
B) parturition.
C) menopause.
D) puberty.
E) ovulation.
Answer: c
Level: 2

128. The female climacteric refers to the
A) cessation of menstruation.
B) time from the onset of irregular menstrual cycles to cessation of those cycles.
C) decrease in the sexual drive.
D) inability to have sexual intercourse.
E) PMS.
Answer: b
Level: 2

129. Hot flashes during the climacteric are thought to be the result of decreased _____ levels.
130. The contraceptive method in which the penis is removed from the vagina just before ejaculation is called
A) abstinence.
B) rhythm method.
C) coitus interruptus.
D) douching.
E) vaginal removal.
Answer: c
Level: 1

131. The contraceptive method that not only prevents fertilization but also provides protection against sexually transmitted diseases is
A) the condom.
B) oral contraceptives.
C) spermicidal agents.
D) coitus interruptus.
E) the diaphragm.
Answer: a
Level: 1

132. Which of the following can cause infertility in females?
A) PMS
B) heavy, prolonged menses
C) blockage of the uterine tubes
D) an increased libido
E) psychological factors
Answer: c
Level: 1

Refer to the figure below for questions 133-137.
133. What does “A” represent on the diagram?
A) seminal vesicle
B) ejaculatory duct
C) ureter
D) testis
E) prostate gland
Answer: c
Level: 1

134. What does “B” represent on the diagram?
A) seminal vesicle
B) ejaculatory duct
C) ureter
D) testis
E) prostate gland
Answer: a
Level: 1

135. What does “C” represent on the diagram?
A) seminal vesicle
B) ejaculatory duct
C) ureter
D) testis
E) prostate gland
Answer: b
Level: 1

136. What does “D” represent on the diagram?
A) seminal vesicle
138. What does “A” on the diagram represent?
A) vagina
B) cervix
C) uterus
D) ovary
E) uterine tube
Answer: e
Level: 1

139. What does “B” on the diagram represent?
A) vagina
B) cervix
C) uterus
D)  ovary
E)  uterine tube
Answer: d
Level: 1

140. What does “C” on the diagram represent?
A)  vagina
B)  cervix
C)  uterus
D)  ovary
E)  uterine tube
Answer: c
Level: 1

141. What does “D” on the diagram represent?
A)  vagina
B)  cervix
C)  uterus
D)  ovary
E)  uterine tube
Answer: b
Level: 1

142. What does “E” on the diagram represent?
A)  vagina
B)  cervix
C)  uterus
D)  ovary
E)  uterine tube
Answer: a
Level: 1

For questions 143 to 147 match the following structures with the appropriate description.
A)  attaches the ovary to the superior margin of the uterus
B)  extends from the uterus through the inguinal canal to the external genitalia
C)  spreads out on both sides of the uterus, is attached to the ovaries and oviducts
D)  extends from the mesovarium to the body wall
E)  attaches the ovaries to the broad ligament

143.  broad ligament
Answer: c
Level: 1

144.  mesovarium
Answer: c
Level: 1
145. suspensory ligament  
Answer: d  
Level: 1

146. ovarian ligament  
Answer: a  
Level: 1

147. round ligament  
Answer: b  
Level: 1

For questions 148 to 152 match the following terms with their definitions or descriptions.  
A) follicular cells located on one side of the mature follicle  
B) dense fibrous connective tissue covering  
C) a chamber within the mature follicle  
D) dense outer portion of the ovary proper  
E) the innermost cells of the cumulus mass

148. tunica albuginea  
Answer: b  
Level: 1

149. cortex  
Answer: d  
Level: 1

150. antrum  
Answer: c  
Level: 1

151. cumulus mass  
Answer: a  
Level: 1

152. corona radiata  
Answer: e  
Level: 1

For questions 153 to 157 match the following structures with the appropriate description.  
A) longitudinal skin folds that border the vestibule  
B) small erectile structure homologous to the penis  
C) a fold formed by the anterior fusion of the labia minora  
D) two hair-covered folds of skin lateral to the labia minora  
E) both the vagina and urethra open into this space
153. vestibule
Answer: e
Level: 1

154. labia minora
Answer: a
Level: 1

155. labia majora
Answer: d
Level: 1

156. clitoris
Answer: b
Level: 1

157. prepuce
Answer: c
Level: 1

**Fill in the Blank**

158. The thick white capsule covering the testis is the _________.
Answer: tunica albuginea
Level: 1

159. The sperm cells are isolated from the immune system by the ________ barrier.
Answer: blood-testes
Level: 1

160. The end of the ductus deferens enlarges to form the ________.
Answer: ampulla
Level: 1

161. Secretions from the accessory glands of the male reproductive glands help form ________
Answer: semen
Level: 1

162. The age at which individuals become capable of sexual reproduction is called ________.
Answer: puberty
Level: 1
163. Oocytes develop from cells called ________.
Answer: oogonia
Level: 1

164. The period during which uterine epithelium sloughs off and is expelled from the uterus is the ________.
Answer: menses
Level: 1

165. The outer layer of the developing embryonic mass is called the ________.
Answer: trophoblast
Level: 1

**Essay Questions**

166. Two teenage girls wanted to make a douche (a solution used to rinse and remove sperm from the vagina following intercourse). One girl suggested using Classic Coke, and the other girl wanted to use baking soda solution. Which solution would be most likely to succeed in preventing a pregnancy? Explain your answer.
Answer: Classic Coke would be the most successful in preventing a pregnancy. Classic Coke has an acidic pH, and would present an inhospitable environment for sperm.
Level: 3

167. Suppose a 9-year-old male had an interstitial cell tumor that resulted in very high levels of testosterone production. How would this tumor affect his development?
Answer: Initially there would be a spurt in growth. However, the testosterone will also cause earlier closure of the epiphyseal plate, so he will reach his maximum height at an earlier age. In addition, his reproductive system would mature and he would develop secondary sexual characteristics (deeper voice, body and facial hair, development of external genitalia, possible development of body musculature) usually seen at a later age.
Level: 3

168. Why might sperm be referred to as "stripped-down" cells?
Answer: Sperm might be viewed as stripped-down cells because they contain few cytoplasmic organelles. Sperm also have no mechanism for nourishment. They do contain mitochondria to power the flagellum. The DNA within the head is highly condensed and tightly packed to minimize volume for transport. In addition, the head contains an acrosome, which contains hydrolytic enzymes that enable the sperm to penetrate the egg's outer coat. The sperm cell is designed to deliver DNA to an egg cell and activate the development program of the egg.
Level: 3

169. What features of an egg cell make it one of the more specialized cells in the human body?
Answer: The large size of the egg allows nutritional reserves to be stored. The presence of a specialized extracellular matrix, the zona pellucida, surrounds the egg, protects the egg from mechanical damage, and serves as a species-specific barrier for sperm. Specialized cortical
vesicles just under the plasma membrane of the egg release their contents upon penetration by a sperm to prevent other sperm from entering.
Level: 3

170. Why are LH and FSH levels elevated in menopausal females?
Answer: The absence of estrogen means that the normal negative feedback loop to the hypothalamus and anterior pituitary is absent. Therefore, the levels of FSH and LH remain high.
Level: 3

171. Why might the events that occur in the mature follicle as a result of the LH surge be compared to an inflammatory reaction?
Answer: The events in the LH surge resemble an inflammatory reaction in that the follicle becomes edematous and swollen. In addition, proteolytic enzymes degenerate ovarian tissue much as enzymes of white blood cells destroy bacteria.
Level: 3