These review questions for the reproductive system were adapted from our textbook and its website, and also from 1800+ Review Questions for Anatomy and Physiology II (2nd edition) by R. Michael Anson, Ph.D.

Multiple choice review questions:

1) Until the time of ejaculation, sperm are matured and stored, mainly in the
   A) seminiferous tubules.
   B) epididymis.
   C) vas deferens.
   D) seminal vesicles.

2) The average ejaculation expels 2 -5.0 ml of semen, which contains about ____ sperm.
   A) 15-20 million
   B) 45-50 million
   C) 120-750 million
   D) 1.1-1.4 billion

3) In males, the pituitary hormone LH…
   A) causes the fallopian ducts to develop
   B) causes testosterone production
   C) causes sperm production
   D) causes erection

4) In boys, testosterone by itself causes all of the following *except*
   A) deeper voice
   B) increased muscle mass
   C) increased sex drive
   D) sperm production

5) In the testis FSH is only able to directly stimulate
   A) muscle growth
   B) testosterone production
   C) sperm production
   D) None of the above choices is correct; FSH only has effects in the ovary.

6) An ovarian follicle that has released its egg is called
   A) a primordial follicle.
   B) an endometrium
   C) a secondary follicle.
   D) a corpus luteum

7) The corpus luteum is sustained by
A) estrogen
B) FSH
C) LH
D) testosterone

8) Progesterone levels reach their highest level during which part if the female of the reproductive cycle?
A) When the follicle is maturing (before ovulation occurs)
B) During the proliferative phase (a new endometrium is forming)
C) During menstrual phase
D) During secretory phase (corpus luteum is mature, endometrium final thickening)

9) Ovulation is caused by
A) a surge of pituitary LH and FSH
B) a follicle growing large enough to secrete large amounts of LH.
C) sexual arousal.
D) rising levels of progesterone.

10) Sloughing off of the endometrium is characteristic of that event known as
A) menopause.
B) menarche.
C) menstruation.
D) amenorrhea.

11) Milk letdown (ejection of milk from the breast by contraction of smooth muscle) requires which hormone?
A) luteinzing hormone (LH)
B) prolactin (PRL)
C) oxytocin
D) dopamine

12) A zygote undergoes its first division or cleavage and becomes a two-celled embryo
A) inside the ovary
B) inside the fallopian tube
C) when it arrives in the uterus about four days after ovulation.
D) when it becomes implanted in the uterine wall about six days after fertilization.

13) The early embryo stage (a hollow ball of cells) that implants in the uterine wall is the
A) trophoblast.
B) morula.
C) frondosum.
D) blastocyst.

14) To prevent menstruation and to sustain pregnancy, the trophoblast cells of the implanted embryo must secrete ____ for the first five or six weeks.

A) progesterone
B) human chorionic gonadotropin (hCG)
C) luteinizing hormone (LH)
D) estrogen

15) Labor is caused by the hormone

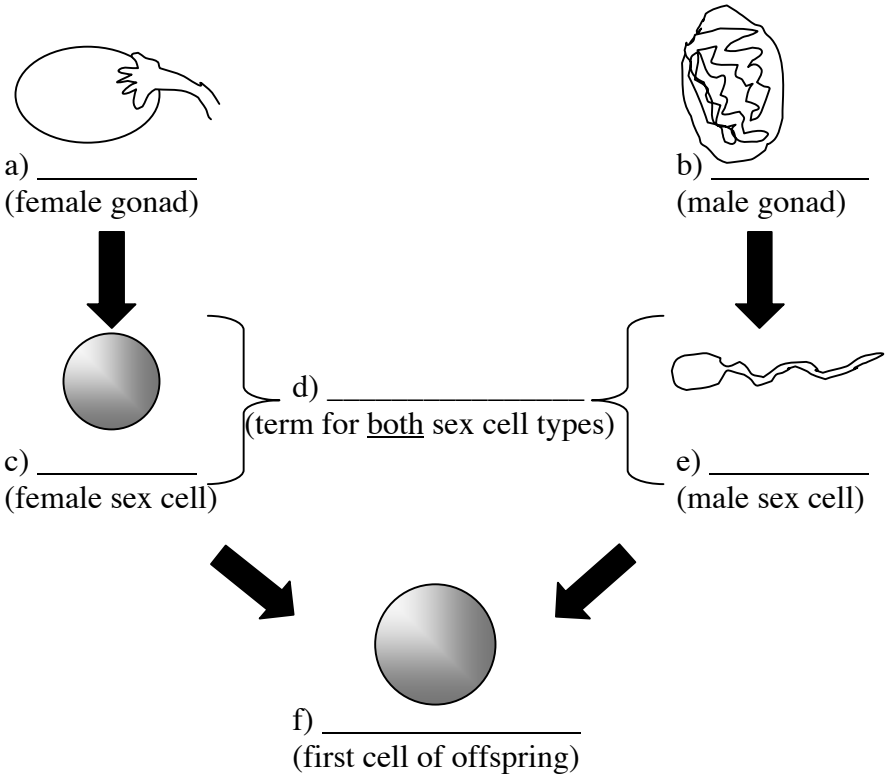
A) LH
B) Oxytocin
C) Progesterone
D) hCG

Answers to multiple choice review questions

1 = B
2 = C
3 = B
4 = D
5 = C
6 = D
7 = C
8 = D
9 = A
10 = C
11 = C
12 = B
13 = D
14 = B
15 = B

Fill-in-the-blank review questions

1) Fill in the following blanks using the hints below:



2) The gametes produced by the female are called the eggs or the _____;They are produced and stored in the female gonads, the _____.

3) Within the testes, sperm production occurs in tubes called the _____.

4) Sperm mature and are stored for up to several months in the _____ .

5) From the epididymis, the sperm are transported next to the _____, which are long tubes that transport sperm from each teste, through the prostate gland, to the _____ (a tube of the urinary system).

6) If a male wishes to become infertile (usually for birth control reasons), the usual surgical procedure that accomplishes this is called a _____. After the operation, semen is/is not (circler one) produced. After the operation, the man can/cannot have an erection. After the operation, the man can/cannot have an orgasm.

7) The _____ of the male serves as the site for sperm maturation and for storage of sperm between periods of sexual activity.

8) In men, the urethra runs through the center of the _____ gland, located directly inferior to the bladder.

9) The term _____ refers to the forcible expulsion of semen from the urethra out of the penis.

10) The seminal vesicles, bulbourethral glands, and prostate gland are called the _____ glands of the male reproductive system, because they don't actually produce gametes and yet are necessary to reproduction.

11) Sperm are inactive and immobile until they pass through the _____.

12) The _____ gland is immediately inferior to the bladder, It has three tubes that pass through it: These tubes are the _____ (carrying urine from the bladder) and the two _____ (carrying sperm from each teste).

13) When the male becomes sexually excited and is approaching orgasm, the _____ glands secrete a clear mucus buffer into the urethra to neutralize any acidity in the urethra or in the vagina.

14) During ejaculation, _____ (how many?) sperm are ejected into the vagina, but most do not reach the egg due to destruction, the inability to penetrate the mucous of the cervix, or by not swimming into the correct fallopian tube.

15) The penis of the male contains _____ tissue, which fills with blood when an erection occurs.

16) FSH stimulates the _____ cells of the testes to make _____.

17) LH stimulates the _____ cells of the testes to make _____.

18) FSH and LH are made by the _____ gland.

19) The major hormone produced by the testes is _____.

20) In the male, _____ hormone causes maturation of male reproductive organs, appearance of secondary sexual characteristics, increased sex drive, maintains sex organs in their functional state, and (in combination with FSH) is necessary for sperm production.

21) Each immature ova and the surrounding cells that protect and support it, is called a(n) _____. In the adult female, hundreds of thousands of these are inside each _____ (an organ).

22) After ovulation, the ova is swept by the finger-like _____ away from the ovary and into the _____ tube.

23) Some ova are lost; The fimbriae are not able to correctly guide them into the fallopian tube. These ova instead enter into the _____ body cavity where they usually degenerate in a few days.

24) The thick muscular layer of the uterus is called the _____; it is made of _____ type of muscle tissue.

25) The innermost layer of the uterus is the _____, it grows thicker in preparation for pregnancy, and then sloughs off if no pregnancy occurs.

26) The endometrium is mostly made of _____ (one of the four major tissue types). It contains large numbers of _____ to supply the embryo with nutrients should pregnancy occur.

27) The opening of the vagina to the outside of the body is flanked on either side by thin folds of sensitive skin called the _____ and the _____. These meet superiorly to form a hood-like covering for the _____, which is the center for much of a female's sexual sensation.

28) The _____ contains erectile spongy tissue (as does the penis in the male). Although much smaller than the penis, it also becomes erect during sexual arousal.

29) The two major hormone products of the ovaries are _____ and _____.

30) During puberty, development of secondary sexual characteristics in the female is stimulated by _____ hormone, which is released from the ovary.

31) After puberty and through middle age, cyclic hormonal changes control the roughly _____ day _____ cycle. (The exact number of days varies.)

32) Because it is easy to identify without ambiguity, the first day of the female reproductive cycle is the day on which the _____ begins to be shed, emerging from the vagina together with blood in a process called _____.

33) A follicle that is enlarging and maturing and is destined to release an ovum in a few days is called a _____ follicle. When a follicle is developing the ovary is said to be in the _____ phase. This phase of the ovarian cycle starts at day _____ and lasts until ovulation, which occurs on day _____.

34) The release of the ova from a mature follicle is called _____.

35) On very rare occasions, two follicles mature and rupture together. Conception and birth resulting from these events gives rise to _____.

36) The cells of the follicle which remain behind in the ovary (after ovulation) increase in size and form a small yellow endocrine gland called the _____. This small gland within the ovary mostly secretes the hormone _____ (and a relatively small amount of the hormone _____) throughout the second half of the uterine cycle. The second half of the uterine cycle is called the _____ phase of the uterine cycle.

37) If fertilization does not occur, the _____ will degenerate by the end of the ovarian cycle (day ____) and thus stop making hormones.

38) During the first few days of the ovarian cycle, a follicle within the ovary begins to mature, and as it matures it secretes the hormone _____. As the follicle gets larger, the level of this hormone rises, and the endometrium of the uterus responds by _____.

39) The female reproductive cycle is controlled hormonally. The maturation of the follicles in the ovaries is triggered by _____, which is released by the _____ gland.

40) After ovulation, the corpus luteum is sustained by _____ hormone.

41) The _____ phase of the uterine cycle occurs when the ovary is in its luteal phase (meaning that the ovary contains a corpus luteum).

42) Approximately the first _____ days of the uterine cycle constitute the _____ phase, during which the surface of the endometrium is shed and discarded via the vagina.

43) At the same time that the follicle is maturing, the uterus is preparing itself for _____ by thickening the _____.

44) The phase of the uterine cycle during which the endometrium of the uterus is first growing thicker is the _____ phase. It begins around day _____. The phase of the uterine cycle during which the endometrium develops glands that secrete sticky substances is called the _____ phase. It begins around day _____. If no pregnancy occurs, the endometreum will last until day _____ of the reproductive cycle, after which it sloughs off and becomes the menstrual flow.

45) If pregnancy does not occur, the corpus luteum degrades and so progesterone levels fall. Without progesterone, the _____ will detach from the uterus.

46) If fertilization has not occurred, the egg and the detached endometrium will eventually pass down through the narrow lower part of the uterus, a region which is called the _____, and from there the menstrual flow passes through the _____, and finally out of the body.

47) Ovulation marks a dramatic change in the events which are occurring in the uterus. The days just prior to ovulation are the _____ phase (named after the thickening of the _____ lining of the uterus), and the days just following ovulation are the _____ phase of the uterine cycle.

48) The hormones _____ and _____ are produced during and after puberty in the pituitary gland: they regulate the function of the ovaries and testes, and control egg and sperm production.

49) Below are several descriptions of events that occur in the female ovarian and uterine cycles. After each description, write "1-5" if it happens on days 1 – 5 of the cycle, write "6-13" if it happens on those days of the cycle, write "14" if it happens on day 14, and write "15–28" if it happens on those days of the cycle. Some blanks may require more than one answer.

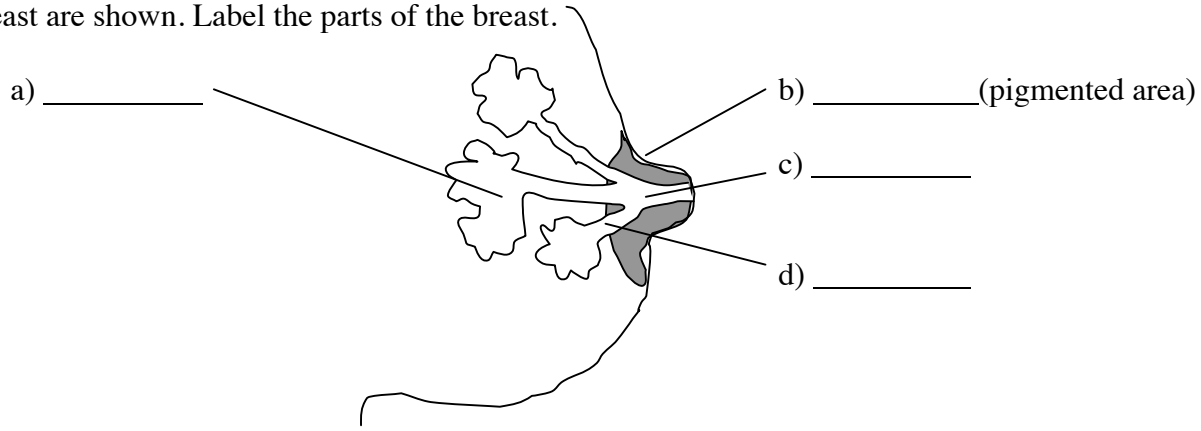
a) The corpus luteum is present: _____
b) Ovulation occurs: _____
c) Menstruation occurs: _____
d) The endometrium is growing thicker: _____
e) LH and FSH levels are decreasing: _____
f) There is a sudden sharp increase in LH and FSH levels: _____
g) A follicle is growing larger: _____
h) Progesterone is being released from the corpus luteum: _____
i) Estrogen is being released from the corpus luteum: _____

50) You are an egg (yes, you are). You start off as an unfertilized egg and then you become fertilized by a sperm cell. Indicate the order of the events that happen to you by writing 1 after the first event, 2 after the second event, etc.

You are in the lower part of the fallopian tube _____
You are fertilized_____
You are in the uterus _____
You are pulled by a fimbriae _____
You are in a mature follicle _____
Ovulation occurs _____
You are pushed by cilia _____

51) _____ is the term used to describe the cessation of activity in the ovary that occurs in women around the age of 50.

52) The drawing below shows a side view of the breast, including some of the ducts and glands inside the breast are shown. Label the parts of the breast.



53) Each breast consists of 15-25 cone shaped _____ that produce milk. Milk that is produced in each is secreted first through a _____ and then through _____ ducts which open on the nipple's surface.

54) The milk is drawn from the breast by suction as a baby nurses. Each nipple is surrounded by a circular band (pigmented in some individuals) called the _____.

55) Prolactin, as its name suggests, is the hormone that promotes _____.

56) Prolactin production by the _____ gland begins before the baby's birth, but milk production is small until after birth.

57) The baby's suckling stimulates the nipples to send signals to the hypothalamus, which responds by causing the pituitary to release the hormones _____ and _____, which are needed for milk production and secretion.

58) Oxytocin causes the _____ tissue of the mammary glands to contract, resulting in _____ by both breasts. This reflex is called the _____ reflex.

59) The breasts contain much _____ tissue, which provides fat to the milk.

60) The oral contraceptives usually consist of synthetic _____and synthetic _____ hormones. The purpose of this combination of hormones is to prevent _____ so that fertilization cannot occur.

61) The drug _____ blocks the ability of progesterone to bind to its receptor and therefore causes sloughing of the endometrium, and therefore an abortion of the embryo.

62) In the female reproductive tract, ejaculated sperm can survive up to a period of about _____ days.

63) The fusion of a sperm cell and an ovum (egg cell) is a process known as _____.

64) When an ovum fuses together with sperm, a single cell results. This cell is called a(n) _____ or a "fertilized egg". It divides many times on its way to the uterus.

65) In order to be fertilized, the ova must encounter a sperm within _____ hours of ovulation. (Sperm can live in the female reproductive tract for up to _____ days). These facts together mean that a woman is usually fertile on day _____ through day _____ of her reproductive cycle.

66) Fertilization usually occurs in this region of the fallopian tube (select the correct answer):

a) The end nearest the ovary
b) The middle
c) The end nearest the uterus

67) You are a sperm cell (yes, you are). Name all tubes or hollow organs that you will pass through to meet the egg, starting with the tubes where you are first formed and ending with the tube where you meet the egg. List all tubes/hollow organs in the order you will pass through them.

68) Fill in the numbers below:

Number of sperm per ejaculation: _____
Number of bulbourethral glands : _____
Number of prostate glands: _____
Number of days egg is fertilizable after ovulation: _____
Number of days sperm are alive after ejaculation: _____

69) From the fallopian tube, the egg - whether it has been fertilized or not – arrives at the _____ region of the uterus first, which is the uppermost region of the uterus.

70) Almost immediately after fertilization, the zygote begins to _____.

71) The term _____ means the hollow ball-shaped embryo that becomes implanted in the endometrial wall of the uterus.

72) The blastocyst is a hollow ball. The outer wall is the _____ cells, and the cluster of cells inside is the _____. The outer cells will eventually develop into the _____, while the inner cells will eventually form the _____.

73) To prevent menstruation, the cells of the blastocyst release _____ hormone. This hormone is very similar in structure to the pituitary hormone ____. In fact, the blastocyst hormone replaces the declining levels of the pituitary hormone that the corpus luteum needs for survival. Using the hormone from the blastocyst, the corpus luteum survives and continues to make _____ hormone, which prevents menstruation.

74) The _____ cord connects the developing embryo to the placenta until birth.

75) The _____ is a fluid-filled sac which surrounds the fetus. It provides cushioning and support during development.

76) A rudimentary circulatory system and a beating heart are present by the start of week _____ (which week?) after fertilization.

77) Organogenesis is the formation of organs and organ systems; by the end of week _____ (which week?), foundations of all organ systems are recognizable.

78) From the beginning of week _____ (which week?) after conception, the developing child is no longer an embryo, but is instead called a(n) _____.

79) During pregnancy, the uterus enlarges dramatically _____ (in which direction?). This sometimes causes _____ by compressing the _____ (a digestive organ).

80) Near the end of pregnancy, placental production of the hormone relaxin causes the _____ of the pelvis to soften and relax. A possible side-effect is that the woman may become more limber.

81) Blood volume increases for the needs of the fetus, leading to increases in the mother's _____.

82) _____means childbirth, and usually occurs around week _____after fertilization.

83) _____ hormone causes the uterine contractions during labor. This same hormone also causes ejection of milk in response to a baby's suckling. It is released from the _____ gland.

84) Pressure of the baby's head against the ____ signals the pituitary to release oxytocin, which causes a uterine contraction. The contraction of the uterus pushes the baby's head against the ____ again, which causes more hormone release and another contraction. This cycle continues until the baby is expelled.

85) Labor is divided into three stages: the _____, _____ and _____ stages.

86) The dilation stage of labor extends from onset of contractions to the time when the _____ is fully dilated.

87) At some time during the dilation stage, the amniotic sac will _____ (or a medical care worker will see that it happens when dilation is nearly complete, if necessary). This is known as the _____.

88) The dilation stage of labor varies greatly in length, but the average is _____ to _____ hours.

89) The expulsion stage extends from the moment of _____ until the time the infant is delivered. As this stage approaches, the mother's urge to assist the labor process by _____ becomes intense. (This urge varies depending on which method is chosen for pain reduction.)

90) Surgical deliveries (known as _____) are sometimes needed if the expulsion stage will be difficult.

91) The expulsion stage of labor is typically_____ in length for a woman's first baby, but on subsequent births it can be as short as ____.

92) The third and final stage of labor is the _____ stage, in which the placenta and attached fetal membranes, no longer needed, are expelled.

93) The placental stage of labor usually occurs _____ (how long?) following the birth of the baby.

94) After each description below, write D if it describes Dilation stage of labor, write E if it describes Expulsion stage of labor, and write P if it describes Placental stage of labor. Some blanks may require more than one answer.

a) The amniotic sack is expelled: _____
b) The woman's uterus is contracting: _____
c) The longest of the 3 stages of labor: _____
d) The amniotic fluid leaks out of the vagina: _____
e) The cervix is fully dilated throughout this stage: _____
f) Doctors may perform a "C-section" to skip this stage if this stage is considered too risky for the mother or the baby: _____

Answers to fill-in-the-blank review questions:

1) a) Ovary
b) Teste
c) Egg/Ova
d) Gametes
e) Sperm
f) Zygote
2) Ova
Ovary
3) Seminiferous tubules
4) Epididymis
5) Vas deferens
Urethra
6) Vasectomy
Is
Can
Can
7) Epididymis
8) Prostate
9) Ejaculation
10) Accessory
11) Prostate gland
12) Prostate
` Urethra
Vas deferens
13) Bulbourethral
14) 120 – 750 million
15) Spongy
16) Sertoli
Sperm
17) Leydig
Testosterone
18) Pituitary
19) Testosterone
20) Testosterone
21) Follicle
Ovary
22) Fimbriae
Fallopian
23) Abdominal
24) Myometrium
Smooth
25) Endometrium
26) Epithelial
Blood vessels
27) Labia minora
Labia majora
Clitoris
28) Clitoris
29) Estrogen
Progesterone
30) Estrogen
31) 28
Female reproductive
32) Endometrium
Menstruation
33) Graafian
Follicular
1
14
34) Ovulation
35) Fraternal twins
36) Corpus luteum
Progesterone
Estrogen
luteal
37) Corpus luteum
28
38) Estrogen
Thickening
39) FSH
Pituitary
40) LH
41) Secretory
42) 5
Menstrual
43) Implantation of the embryo
Enometrium
44) Proliferative
6
` Secretory
15
28
45) Endometrium
46) Cervix
Vagina
47) Proliferative
Endometrial
Secretory

48) FSH
LH

49) a) 15-28
b) 14
c) 1-5
d) 6-13
e) 15-28
f) 14
g) 1-5, 6-13
h) 15-28
i) 15-28

50) 6
5
7
3
1
2
4

51) Menopause

52) a) Mammary (milk-producing) glands
Mammary duct
Lactiferous duct
Areola

53) Mammary glands
Mammary duct
Lactiferous ducts

54) Areola

55) Milk production

56) Pituitary

57) Prolactin
Oxytocin

58) Smooth muscle
Milk ejection
Let down

59) Adipose

60) Estrogen
Progesterone
Ovulation

61) RU486

62) Three

63) Fertilization

64) Zygote

65) 24
3
11
14

66) A (the end nearest the ovary)

67) Seminiferous tubules
Epididymis
Vas Deferens
Urethra
Vagina
Uterus
Fallopian tube

68) 120 – 750 million
2
1
1
3

69) Fundus

70) Divide

71) Blastocyst

72) Trophoblast
Inner cell mass
Placenta
Baby

73) hCG
LH
Progesterone

74) Umbilical

75) Amnion

76) Four

77) Eight

78) Nine
Fetus

79) Upward
Acid reflux (heart burn)

80) Ligaments

81) Blood pressure

82) Parturition/Partum
37

83) Oxytocin
Pituitary

84) Cervix
Cervix

85) Dilation
Expulsion
Placental

86) Cervix
87) Break/tear
Water breaking
88) 6 – 12
89) Full dilation of the cervix
Pushing with her abdominal muscles
90) Caesarian sections
91) One hour
20 minutes
92) Placental
93) 15 minutes
94) a) P
b) D
c) D
d) D
e) E
f) E

Short answer review questions:

1) A vasectomy is an operation a man can chose to have to make himself infertile. Describe briefly what the procedure is and what happens to the sperm cells. Also explain how a vasectomy can make a man infertile without changing his testosterone level or his sperm production, and without changing his ability to make semen when he ejaculates.

2) Compare the two major cell types (other than sperm cells) of the testes. Compare which pituitary hormone each cell type is stimulated by, what each cell's function is, and how the two cell types interact with each other.

3) Name the three male reproductive system accessory glands. After each one, name its secretions and briefly describe the exact way each one assists in reproduction.

4) Explain briefly why elderly men sometimes have difficulty initiating urination.

5) Describe briefly the changes in the penis tissues that produce an erection.

6) A young boy is in an car accident. His pituitary gland is damaged but his testes are undamaged. Years later, when the boy reaches puberty, he does not show any of the usual signs of male puberty (beard, mustache, lowered voice). Explain his lack of male characteristics in terms of hormones.

7) List the hormone secretions of the Graafian follicle and the corpus luteum in females, and the Leydig cells in males. Your list should also note what family of hormones are being secreted.

8) Ectopic pregnancies are pregnancies where the embryo implants and begins to grow in a region of the woman's body other than her uterus. This endangers the life of the mother and therefore ectopic pregnancies are usually terminated. Although the cause of ectopic pregnancies is not understood, explain how (in theory) malfunctioning cilia or malfunctioning fimbriae could cause an ectopic pregnancy. In each case, explain where the embryo would implant and grow.

9) Most hormone-based contraceptives (such as birth control pills) contain large amounts of what hormones? _____ Explain why large amounts of these hormones prevent pregnancy.

10) Explain the role of hCG in sustaining pregnancy. Your answer should include a) The source of hCG, b) its target organ, c) What activity it promotes in the target organ, and d) why this target-organ activity is important in sustaining pregnancy.

11) Explain the role of relaxin hormone in pregnancy. Your answer should include a) The source of relaxin, b) its target organs, c) What activity it promotes in the target organ, and d) why this target-organ activity is important in pregnancy.

12) Many pregnant women report changes in their bodies as they get near their due date. After each change described below, explain what causes the change.

a) Frequent urination

b) Upset stomach or heartburn.

c) Getting more limber (they can bend their arm and leg joints in extreme ways that would have been painful before pregnancy).

13) To induce labor, doctors sometimes give a woman an artificial version of a pituitary hormone. Name the labor-inducing hormone: _____. The artificial hormone that is injected only causes a few contractions (not enough contractions to expel the baby). But those few contractions are enough to put the woman's body into labor, where it generates its own contractions until the baby is born. Explain how inducing a few contractions can start a cycle of hundreds contractions that lead to the birth of the baby.

14) Items a – d below describe situations where something goes wrong in the reproductive process. After each item, answer Yes or No about whether fertilization would occur? Would implantation occur? Would the baby reach term (full development)? Would the birth be a normal birth? Under any "No" answers, explain what exactly would go wrong in the pregnancy.

	Fertilization?	Implantation?	Reach term?	Normal birth?
a) The cilia in the fallopian tube don't function.	_____	_____	_____	_____
b) The myometrium does not function.	_____	_____	_____	_____
c) hCG is not produced.	_____	_____	_____	_____
d) The inner cell mass is missing from the blastocyst.	_____	_____	_____	_____

Problem 15) If a nursing mother's pituitary gland were able to make the hormone prolactin but not the hormone oxytocin, would her baby be able to nurse effectively? Why or why not?

Answers to short-answer review questions:

1) A vasectomy is when the vas deferens (the tubes that carry sperm away from the testes and epididymis) are cut. This prevents sperm from becoming part of the semen. The man still produces semen when he ejaculates because most of the semen is made by glands in the pelvis. The testes are unaffected: They still produce testosterone and sperm (the sperm are reabsorbed by the body). The only difference is that the semen will lack sperm.

2) Other than sperm cells, the main cells of the testes are the Sertoli cells and the Leydig cells. The Leydig cells make testosterone because they are stimulated to do so by the pituitary hormone LH. Sertoli cells (working with the spermatogonia cells) make sperm because they are stimulated to do so by the pituitary hormone FSH. The two cells interact in this way: The testosterone made by the Leydig cells greatly increases the amount of sperm that the Sertoli cells make.

3) The three male reproductive system accessory glands are 1) the prostate gland (which makes sperm-activating molecules), 2) the seminal vesicles (which add nutrients to the semen), and 3) the bulbourethral glands (which make a buffer to neutralize acids in the urethra and the vagina that might damage the sperm).

4) In many elderly males the prostate gland becomes enlarged due to a slow growing cancer called prostate cancer. Because the urethra runs through the prostate gland, the growth of the gland sometimes constricts the urethra. This results in difficulty initiating urination.

5) The penis contains "spongy tissue", which is tissue containing many unfilled open spaces between the cells. When a man becomes sexually aroused, blood enters the spongy tissue of the penis and fills the empty spaces between the cells. The blood pressure and blood volume in the spongy tissue increase the length and rigidity of the penis, resulting in an erection.

6) The normal changes that occur to a male during puberty include deepening of the voice and growth of facial hair. These (and many other) male characteristics are caused by testosterone, a hormone produced by the testes. If these male traits do not develop at puberty, the problem maybe a defect in the testes' ability to make testosterone. The testes, however, require the pituitary hormone LH to make testosterone. If the testes are undamaged, yet the male does not display any of the normal male characteristics, the problem may be damage to the pituitary that results in insufficient LH production.

7) Graafian follicles make primarily estrogen. The corpus luteum makes progesterone and a little estrogen. Leydig cells make testosterone. All of these hormones are in the steroid family of hormones.

8) The cilia propel the embryo through the fallopian tube to the uterus. If the cilia were not functioning an ectopic pregnancy would occur within the fallopian tube. The fimbriae draw the ova from the ovary into the fallopian tube. If the fimbriae were not functioning, the ova would not enter the fallopian tube but instead would implant somewhere within the abdominopelvic cavity (such as on the outside of the intestines).

9) Most hormone-based contraceptives contain large amounts of the hormones estrogen and progesterone. High levels of progesterone and estrogen occur naturally in the body during pregnancy. The high levels of these hormones from the contraceptive "fool the body into thinking it is pregnant." To be more precise, the high levels of estrogen and progesterone halt ovulation (because it would be wasteful for the ovaries to release eggs during pregnancy). By preventing ovulation, the contraceptive prevents pregnancy.

10) The hormone hCG (human chorionic gonadotropin) is released by the embryo starting just a few days after fertilization has occurred. The target organ of the hormone is the corpus luteum in the ovary. The hCG sustains the corpus luteum (in other words, the hCG keeps the corpus luteum alive and functioning). This is very important for maintaining the pregnancy because the corpus luteum makes the progesterone that prevents menstruation during pregnancy. If the embryo did not make hCG, the corpus luteum would die about two weeks after ovulation. The decrease in progesterone would cause the woman to menstruate, which would end the pregnancy.

11) The hormone relaxin is made by the placenta near the end of pregnancy. Its target organs are the ligaments, especially the ligaments of the pelvis. Relaxin causes the ligaments to loosen. This loosening is important because it allows the mother's pelvic bones to open apart more widely than usual, which facilitates the birthing process.

12) Frequent urination during the latter parts of pregnancy is caused by the fetus compressing the bladder. Also, the increased blood volume and metabolic activity of the mother leads to larger-than-usual volumes of urine being produced. Upset stomach/heartburn is caused by the fetus compressing the digestive system organs, especially the stomach in the case of heartburn (acid reflex). Getting more limber during pregnancy (an effect that does not happen to all pregnant women) is due to the placental hormone relaxin loosening the ligaments of the body in preparation for labor.

13) The hormone oxytocin causes labor contractions. (The synthetic version of the hormone given to induce labor is called pitocin). The first contractions of labor push the baby's head against the cervix. This triggers a reflex that causes the mother's pituitary gland to release oxytocin, which then causes more contractions, which presses the baby's head against the cervix again, which causes more oxytocin to be released, etc. This cycle repeats itself until the baby is delivered. If the mother is having trouble stating contractions, an injection of the hormone is given. The injected hormone causes only a few contractions of the uterus, but those few lead to the cycle of contractions described above.

14)	Fertilization?	Implantation?	Reach term?	Normal birth?
a) The cilia in the fallopian tube don't function.	Yes	No	No*	N/A
b) The myometrium does not function.	Yes	Yes	Yes	No**
c) hCG is not produced.	Yes	Yes	No***	N/A
d) The inner cell mass is missing from the blastocyst.	Yes	Yes	No****	N/A

* The embryo would start to develop inside the fallopian tube. This is an ectopic pregnancy. Because this is a threat to the mother's life, ectopic pregnancies are usually terminated.

** The myometrium is the uterine muscle that expels the baby during labor. If it were not functioning, a caesarean section (surgical delivery) would be performed.

*** hCG is needed to prevent menstruation during pregnancy. If no hCG is made the developing embryo would be lost in the next menstruation.

**** The inner cell mass is the part of the embryo that develops into the baby. If it were missing, no baby would develop.

15) The baby would not be able to nurse as effectively as normal. The prolactin hormone causes the glands within the breast to make milk but the oxytocin hormone is needed for the glands to eject the milk to the nipple.