1. Which structure is correctly paired with its function?
   A) ovary – provides milk for newborns
   B) testis – development of sperm
   C) placenta – storage of released eggs
   D) uterus – produces estrogen

2. Base your answer to the following question on the diagram below and on your knowledge of biology. The letters in the diagram indicate structures present in a human male.

   What change would occur immediately if both structures labeled B were damaged or blocked?
   A) Structure A would decrease in size.
   B) The blood supply to structure E would decrease.
   C) Gametes would no longer be transported to structure C.
   D) Structure D would be able to deliver more gametes.

3. The diagram below represents a system in the human body.

   The primary function of structure X is to
   A) produce energy needed for sperm to move
   B) provide food for the sperm to carry to the egg
   C) produce and store urine
   D) form gametes that may be involved in fertilization

4. Base your answer to the following question on the picture below which represents systems in a human male and on your knowledge of biology.

   Which structure has both reproductive and excretory functions?
   A) A  B) G  C) C  D) D

5. The data in the table below indicate the presence of specific reproductive hormones in blood samples taken from three individuals. An X in the hormone column indicates a positive lab test for the appropriate levels necessary for normal reproductive functioning in that individual.

<table>
<thead>
<tr>
<th>Individuals</th>
<th>Testosterone</th>
<th>Progesterone</th>
<th>Estrogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   Which processes could occur in individual 3?
   A) production of sperm, only
   B) production of sperm and production of eggs
   C) production of eggs and embryonic development
   D) production of eggs, only
6. Which diagram best represents part of the process of sperm formation in an organism that has a normal chromosome number of eight?

A) ![Diagram A]

B) ![Diagram B]

C) ![Diagram C]

D) ![Diagram D]

Base your answers to questions 7 and 8 on the diagram below and on your knowledge of biology. The diagram represents the human female reproductive system.

7. The placenta forms from the combination of fetal tissue and tissue from structure
A) A  B) B  C) C  D) D

8. Structure A usually produces
A) sperm and eggs
B) testosterone and eggs
C) estrogen, progesterone, and eggs
D) estrogen, progesterone, and testosterone
9. Base your answer to the following question on the diagram below and on your knowledge of biology. The diagram represents the reproductive systems of the human female and male.

In which structure do gametes usually unite to produce a zygote?

A) A  B) G  C) C  D) F

10. The human female reproductive system is represented in the diagram below.

Production of gametes and support of the fetus normally occur in structures

A) 1 and 2  B) 2 and 4  C) 3 and 5  D) 4 and 5

11. Which structure is correctly paired with its function?

A) testis — produces nutrients for the offspring
B) placenta — allows nutrients to diffuse from the mother to the embryo
C) uterus — produces testosterone used in egg production
D) ovary — provides a place for the internal development of the embryo

12. Which statement best describes the relationship between the blood of a human fetus and the blood of the mother?

A) Their blood systems are separate only at certain times in development and connected at other times.
B) The blood flows directly from the mother into the fetus.
C) Their blood systems are separate and no materials are exchanged.
D) Their blood systems are separate, but certain materials pass from one to the other.

13. What is the human female reproductive system adapted for?

A) production of zygotes in ovaries
B) external fertilization of gametes
C) production of milk for a developing embryo
D) transport of oxygen through a placenta to a fetus

14. Removal of one ovary from a human female would most likely

A) affect the production of eggs
B) make fertilization impossible
C) make carrying a fetus impossible
D) decrease her ability to provide essential nutrients to an embryo
15. Which sequence represents the normal order of events that occur during the menstrual cycle?

A) menstruation → ovulation → corpus luteum → follicle stage
B) follicle stage → ovulation → corpus luteum → menstruation
C) ovulation → follicle stage → corpus luteum → menstruation
D) follicle stage → menstruation → corpus luteum → ovulation

16. Some chemical interactions in a human are shown in the graph below.

This graph represents hormones and events in the
A) process of fetal growth and development
B) process of meiotic cell division during sperm development
C) reproductive cycle of males
D) reproductive cycle of females

Base your answers to questions 17 through 19 on the stage of the human menstrual cycle, chosen from the list below, that is most closely associated with that statement.

_Stage of the Human Menstrual Cycle_

1. Follicle
2. Ovulation
3. Corpus luteum
4. Menstruation

17. It usually will _not_ occur if a zygote is formed during the cycle.

A) 1  B) 2  C) 3  D) 4

18. A mature egg is released.

A) 1  B) 2  C) 3  D) 4

19. It is characterized by a yellow-bodied structure that secretes the hormone progesterone.

A) 1  B) 2  C) 3  D) 4

20. The human menstrual cycle is controlled by hormones produced and secreted by the

A) ovaries, only  B) uterus, only
C) pituitary gland and ovaries  D) pituitary gland and uterus

21. In a human female, what is the most direct result of the presence of the hormone FSH?

A) production of the corpus luteum  B) development of the ovarian follicle
C) breakdown of the uterine lining  D) disintegration of the ovum

22. The material that flows from the human female reproductive tract during menstruation is produced by the breakdown of the lining of the

A) ovary  B) oviduct
C) vagina  D) uterus

23. Base your answer to the following question on the diagram below, which represents a necessary part of human reproduction.

Estrogen stimulates the production of additional blood vessels in structure

A) 1  B) 2  C) 5  D) 7
24. Base your answer to the following question on the diagram below which represents structures found in a female mammal's reproductive system and some processes which might occur within that system.

The process by which the structure labeled B is released from the structure labeled A is known as

A) differentiation  B) ovulation  C) gastrulation  D) germination

25. Which hormone most directly influences the corpus luteum stage of the menstrual cycle?
A) 1   B) 2   C) 3   D) 4

26. Which hormone most directly promotes the maturation of the egg?
A) 1   B) 2   C) 3   D) 4

27. Which hormone maintains the uterine lining after ovulation?
A) 1   B) 2   C) 3   D) 4

28. The periodic shedding of the uterine lining usually takes place
A) after menopause  B) during pregnancy  C) if fertilization does not occur  D) before the onset of puberty

29. The female sex hormones estrogen and progesterone are produced in the
A) uterus  B) umbilical cord  C) ovaries  D) pituitary gland

30. A large number of sperm cells are produced by males every day. This large number of sperm cells increases the chance that
A) at least one sperm cell will be reached when the eggs swim toward the sperm cells in the ovary
B) several sperm cells will unite with an egg so the fertilized egg will develop properly
C) some of the sperm cells will survive to reach the egg
D) enough sperm cells will be present to transport the egg from where it is produced to where it develops into a fetus

31. Which diagram best illustrates an event in sexual reproduction that would most directly lead to the formation of a human embryo?
A)  
B)  
C)  
D)  


32. Which statement about the gametes represented in the diagram below is correct?

A) They are produced by females.
B) They are fertilized in an ovary.
C) They transport genetic material.
D) They are produced by mitosis.

33. Human egg cells are most similar to human sperm cells in their

A) method of movement
B) amount of stored food
C) chromosome number
D) shape and size

34. Base your answer to the following question on the diagram below, which suggests an event in human reproduction.

In humans, which process would normally not occur within the first two months after the completion of the process suggested in the diagram?

A) mitosis
B) implantation
C) menstruation
D) differentiation

35. Which techniques are sometimes used to help a woman who has blocked fallopian tubes have a child?

A) inbreeding and natural selection
B) in vitro fertilization and implantation
C) hybridization and vegetative propagation
D) synopsis and artificial selection

36. The major function of the placenta is to

A) cushion the fetus so it won't be hurt when the mother moves
B) exchange food, oxygen, and waste between mother and fetus
C) store food for the fetus
D) support the egg for the process of fertilization

37. Exposure to toxins during early stages of pregnancy is more likely to cause birth defects than exposure in late pregnancy because

A) essential organs form during early development
B) the uterus provides more protection in late pregnancy
C) the placenta forms during late pregnancy
D) meiosis occurs rapidly during early development

38. A pathogen passing from a mother to her fetus could cause

A) a decrease in the chromosome number of the fetus
B) an increase in milk production in the mother
C) gamete production to increase
D) an infection in the fetus

39. Which sequence represents the order of some events in human development?

A) fertilized egg → sperm → tissues → egg
B) fetus → tissues → fertilized egg → egg
C) fertilized egg → tissues → organs → fetus
D) sperm → fertilized egg → organs → tissues

40. Which process normally occurs at the placenta?

A) Oxygen diffuses from fetal blood to maternal blood.
B) Materials are exchanged between fetal and maternal blood.
C) Maternal blood is converted into fetal blood.
D) Digestive enzymes pass from maternal blood to fetal blood.
41. Within which structure in the human body does specialization of parts of the developing baby take place?
A) ovary  B) uterus  C) testis  D) pancreas

42. The skin of a human develops from an embryonic layer known as the
A) endoderm  B) mesoderm  C) meristem  D) ectoderm

43. Base your answer to the following question on the diagram below, which represents a human embryo developing in the uterus, and on your knowledge of biology.

Structure 3 represents the
A) membrane that protects the embryo from mechanical shock
B) site of exchange of materials between the mother and the fetus
C) site where the female gametes undergo meiosis during maturation
D) structure that stores yolk for the developing fetus

44. The development of an embryo is represented in the diagram below.

These changes in the form of the embryo are a direct result of
A) uncontrolled cell division and mutations
B) differentiation and growth
C) antibodies and antigens inherited from the father
D) meiosis and fertilization

45. Some stages in the development of an individual are listed below.
(A) differentiation of cells into tissues
(B) fertilization of egg by sperm
(C) organ development
(D) mitotic cell division of zygote
Which sequence represents the correct order of these stages?
A) A–B–C–D  B) B–C–A–D
C) D–B–C–A  D) B–D–A–C
46. Base your answer to the following question on the diagrams below and on your knowledge of biology.

Which diagram shows the first appearance of the distinct layer of cells that will form the muscular, skeletal, and circulatory systems?

A) 11    B) 8    C) 6    D) 4

47. Different embryonic layers of tissue form during the process of

A) fertilization    B) birth
C) cleavage    D) gastrulation

48. Base your answer to the following question on the graph below and on your knowledge of biology. The graph represents changes in the mass of a fetus from week 8 to its birth at week 43.

During which five-week period did the fetal mass increase at the greatest rate?

A) weeks 10–15    B) weeks 15–20
C) weeks 25–30    D) weeks 30–35
Some researchers state that the level of a particular hormone present in the bloodstream of a pregnant woman may be used to predict whether birth will occur prematurely, on time, or late. During a study involving 485 pregnant women, the level of corticotrophin-releasing hormone (CRH) was measured during weeks 16 through 20 of the usual 40-week gestation period. A comparison of these hormone levels to times of birth indicated that women who delivered prematurely (less than 37 weeks) had an average of 3.6 times more CRH than those who gave birth on time.

CRH, a hormone produced by the hypothalamus, aids in regulating the secretion of hormones produced by the adrenal glands. CRH is also secreted by the placenta. Secretion of CRH by the placenta usually begins early in the second trimester (three months) of pregnancy. The level continues to increase dramatically as the delivery date approaches. For most of the pregnancy, another protein molecule binds to CRH, blocking its action. Researchers suggest that when CRH levels rise high enough to counteract the blocking protein, labor begins.

The placenta has a regulatory role over the activities in the body of the mother during pregnancy. Secretions of placental estrogen and progesterone begin after the first few weeks, and from the third to the ninth month, the placenta supplies these hormones at the levels necessary to maintain pregnancy. Progesterone inhibits the uterine contractions necessary for delivery. It has been suggested that cortisol, an adrenal hormone released by the fetus, overcomes the inhibiting effects of progesterone as the level of progesterone drops toward the end of gestation. Also at this time, oxytocin, a hormone synthesized by the hypothalamus of the mother, is released, stimulating uterine contractions and the onset of labor.

Although it is still not known whether CRH determines the length of pregnancy, researchers expect that experiments to lower CRH levels to prevent premature labor are not far off.

49. The release of cortisol by the adrenal gland of the fetus causes
   A) a decrease in CRH levels in the blood of the mother
   B) a decrease in the inhibiting effects of progesterone
   C) contractions of the oviducts
   D) the secretion of progesterone

50. Which structures play a role in initiating the birth process at the end of the gestation period?
   A) amnion and uterus
   B) hypothalamus and placenta
   C) oviduct and umbilical cord
   D) adrenal glands and yolk sac