

**Reviewing Content**

1. b      5. c      9. c  
2. b      6. a      10. c  
3. b      7. b

**Understanding Concepts**

11. A hormone binds to a specific chemical receptor on a target cell or to receptors inside the cell. For example, progesterone binds to a receptor site inside a uterine cell.

12. Prostaglandins are hormonelike substances that affect only nearby cells or tissues.

13. When the level of a hormone increases in the blood, it "feeds back" to inhibit the gland that produced it.

14. The pituitary gland

15. Epinephrine increases heart rate, blood pressure, and blood flow to the muscles. It also causes air passageways to widen and stimulates the release of extra glucose into the blood to help produce a sudden burst of energy.

These actions result in a general increase in body activity, which can serve as preparation for intense physical activity.

16. Diabetes mellitus may occur. Very high blood glucose levels can cause serious complications or death.

18. Follicle-stimulating hormone (FSH) and luteinizing hormone (LH)

20. A sperm cell consists of a head containing a highly condensed nucleus, a midpiece packed with mitochondria, and a flagellum that propels it forward.

21. Sperm travel from the seminiferous tubules in the testes into the epididymis, where they mature and are stored. Sperm then are moved into the vas deferens, where fluids from the seminal vesicle, prostate gland, and bulbourethral gland are added to form semen. The semen is ejected from the penis through the urethra.

22. Development of the reproductive system and female secondary sex characteristics, regulation of the menstrual cycle, and preparation of the uterus for implantation

23. It passes through a Fallopian tube and the uterus and if unfertilized is discharged from the body through the vagina.

25. A zygote undergoes cell division as it passes through the Fallopian tube from a two-celled embryo on day 2 to a solid, 50-cell morula on day 4. As the embryo grows, a fluid-filled cavity forms in the center, transforming it into a hollow blastocyst. About six or seven days after fertilization, the blastocyst implants into the wall of the uterus.

27. The placenta, which contains maternal and fetal tissues, can be thought of as the fetus's organ of respiration, nutrition, and excretion.

28. Childbirth begins when the pituitary gland releases oxytocin, which stimulates contractions. The contractions cause the opening of the cervix to expand enough for the baby to pass through it. The amniotic sac breaks, and contractions of the uterus force the baby out through the vagina.

### **Critical Thinking**

29. The red line represents a person with diabetes, and the blue line represents a person who does not have diabetes. The person with diabetes has a high level of blood glucose for a longer period of time following a meal due to lack of insulin to help remove glucose from the blood.

32. The placenta is made up of two layers, the fetal portion and the maternal portion. This two-layered structure allows the blood of the mother and the embryo to flow past each other but not to mix.

33. Because the Fallopian tube does not provide the fetus with enough room to grow and the tube would eventually rupture

34. This keeps sperm at a cooler temperature than internal body temperature, which is needed for normal development.

35. Insufficient amounts of FSH and LH would cause follicles to fail to develop to maturity and release mature eggs. Further, without a rise in estrogen and progesterone, the uterine lining would not be maintained.