

For questions Q1 to Q5, select from A through E. Any letter may be used more than once or not at all. **1 point each**

- Q1. Sheets of tightly packed cells that compose the skin**
- Q2. Includes blood cells and adipose tissue**
- Q3. Includes a synapse at the junction with a target cell**
- Q4. Can produce elastic fibers**
- Q5. Lines the stomach lumen**

- A. Squamous Epithelial Tissue
- B. Columnar Epithelial Tissue
- C. Connective Tissue
- D. Muscle Tissue
- E. Nervous Tissue

Q6. Which of the following is correct for glucagon after binding to its receptor? (2 points).

- A. Activation of a tyrosine kinase leads to phosphorylation of a receptor substrate
- B. Activation of protein kinase A that leads to activation of adenylate cyclase
- C. Production of cAMP that leads to GTP/GDP exchange on a G-protein
- D. Activation of protein kinase A that leads to phosphorylation of a tyrosine kinase
- E. GTP/GDP exchange on a G-protein that controls activation of adenylate cyclase

For questions Q7 to Q10, select from A through E. Any letter may be used more than once or not at all. **1 point each**

- Q7. Secreted by beta islet cells of the pancreas**
- Q8. Secreted in response to high levels of blood glucose**
- Q9. Secreted in response to low levels of blood glucose**
- Q10. Produced in response to stress**

- A. Thyroid hormone
- B. Insulin
- C. Epinephrine
- D. Glucagon
- E. Estrogen

For questions Q11 to Q14, select from A through E. Any letter may be used more than once or not at all. **(2 points each)**

- Q11. Spermatogonia**
- Q12. Secondary spermatocytes**
- Q13. Spermatids**
- Q14. Primary spermatocyte**

- A. Cell produced after the first meiotic division
- B. Cell produced after the meiotic duplication
- C. Cell that undergoes constant mitotic divisions
- D. Cell type that undergoes four meiotic divisions
- E. Cell produced after the second meiotic division

Q15. In human females, the first meiotic division (2 points)

- A. results in the formation of a true diploid cell
- B. results in the formation of the secondary oocyte and a polar body
- C. is the only meiotic division that results in the formation of two polar bodies
- D. occurs after the entry of the sperm nucleus
- E. results in the formation of two oogonia

Q16. Negative feedback of testosterone on the Anterior Pituitary(2 points)

- A. Blocks the release of GnRH
- B. Blocks the release of ACTH
- C. Blocks the release of LH
- D. Blocks the release of inhibin
- E. Blocks the release of Cortisol

Q17. A researcher removes the gray crescent from the newly fertilized frog egg. Predict the structure of the frog embryo at a later stage of development (3 points).

- A. Has Two heads
- B. Has Two tails
- C. Has no ventral structures
- D. Has no dorsal structure
- E. Has both dorsal and ventral structures

For questions Q18 to Q20, select from A through E. Any letter may be used more than once or not at all.
(2 points each)

Q18. Erythropoietin

Q19 Fibrinogen

Q20 Antidiuretic hormone

- A. Produced in response to dehydration
- B. Produced in response to low tissue oxygen
- C. Produced in response to an increase in blood volume
- D. Causes the Bohr effect
- E. Involved in the blood clotting process

Answer Key

1	A
2	C
3	E
4	C
5	B
6	E
7	B
8	B
9	D
10	C
11	C
12	A
13	E
14	B
15	B
16	C
17	D
18	B
19	E
20	A