HSS 307: Human Physiology
Quiz 5
Name_____

Please circle the correct response(s). There may 0-4 correct responses.

1. All tropic hormones share these characteristics:
    a. Secreted by the hypothalamus (FIG 6.5; NOT THOSE SECRETED BY THE ANTERIOR PITUITARY)
    b. Synthesized by neurosecretory cells (FIG 6.5; NEUROSECRETORY CELLS ARE ONLY IN THE HYPOTHALAMUS; SOME TROPIC HORMONES COME FROM ENDOCRINE CELLS IN THE ANTERIOR PITUITARY AND, THUS ARE NOT SYNTHESIZED BY NEUROSECRETORY CELLS)
    c. Have target cells that are endocrine (P.151; TROPIC HORMONES HAVE ENDOCRINE GLANDS AND, THEREFORE, ENDOCRINE CELLS, AS TARGET CELLS)
    d. Regulated directly or indirectly by short and long negative feedback loops (FIG 6.6; ALL TROPIC HORMONES ARE REGULATED BY NEGATIVE FEEDBACK BOTH SHORT AND LONG)

2. Regarding total energy stored in the body, approximately:
    a. Approximately 21% of the body's stored energy is in skeletal muscle (TABLE 21.1; SINCE 22% OF THE BODY'S ENERGY RESERVES ARE IN PROTEIN AND 98% OF PROTEIN IS IN SKELETAL MUSCLE (TABLE 21.2), THEN JUST UNDER 22% OF THE BODY'S STORED ENERGY IS IN SKELETAL MUSCLE)
    b. Essentially none is stored in the brain (TABLES 21.1 AND 21.2; SINCE ONLY 1% OF THE TOTAL STORED IS CARBO AND THE BRAIN STORES LESS THAN 1% OF THAT, THEN IT STORES ESSENTIALLY NONE)
    c. 25-30% of stored carbohydrate is available to maintain plasma glucose levels at a healthy level during the postabsorptive state (P.612-13; STORED CARBO = GLYCOGEN. THE GLYCOGEN STORED IN SKELETAL MUSCLE CAN BE USED ONLY FOR THAT MUSCLE. THE GLYCOGEN STORED IN THE LIVER (24%) IS THE PRIMARY SOURCE OF PLASMA GLUCOSE. ADDING THE GLYCOGEN STORE IN ADIPOSE TISSUE OF 5%, THIS YIELDS 25-30%)
    a. 99% is stored in adipocytes (TABLE 21.1; SINCE 77% OF TOTAL ENERGY IS LIPID (FAT) AND 99% OF THAT IS STORED IN ADIPOCYTES, THEN APPROX. 77% IS STORED IN ADIPOCYTES)

3. The following are characteristics that distinguish the anterior from the posterior lobes of the pituitary gland:
    a. Contain endocrine cells that produce hormones (FIG. 6.4 – ANT. PITUITARY, SHOWS THE ENDOCRINE CELLS, FIG. 6.3 – POST PITUITARY, SHOWS THAT THE HORMONES ARE PRODUCED IN THE HYPOTHALAMUS)
    b. Associated hypothalamic hormones secreted by neurons (BOTH ARE, FIG. 6.3 AND 6.4)
    c. Associated hypothalamic hormones travel to pituitary gland via blood (HORMONES TRAVEL VIA PORTAL VEIN FOR ANTERIOR LOBE, P.151; HORMONES TRAVEL VIA NEURONS IN THE POSTERIOR LOBE, P.149)
    d. Contain target cells for tropic hormones (ANTERIOR LOBE CONTAINS ENDOCRINE CELLS REGULATED BY TROPIC HORMONES FROM HYPOTHALAMUS, P.151; POSTERIOR LOBE HAS NO TARGET OR ENDOCRINE CELLS, FIG. 6.3)