Name ____________________

HUMAN ANATOMY REVIEW WORKSHEET
EXAM 5 -- 20 pts

Be able to label all assigned features on these text Figures: 16.2, 16.5, 18.1, 4.2, 4.8b, 26.21 (a & c)

FYI: Before you complete this worksheet, label Fig. 16.2, 16.5, then redraw and fill in Tables 16.1 & 16.3 (on other pieces of paper). I won’t grade those, but they are invaluable review (and sometimes show up on the final exam.)

1. Review your notes and examine Fig. 16.5 carefully. Note that this Figure shows only the sympathetic nervous system, but these questions refer to both divisions of the ANS.
With respect to the ANS, which specific type of axon(s) would you expect to find in:

a. anterior root of T12? (sympathetic/parasympathetic) (preganglionic/postganglionic)
b. anterior root of S3? (sympathetic/parasympathetic) (preganglionic/postganglionic)
c. anterior ramus of T12? (sympathetic/parasympathetic) (preganglionic/postganglionic)
d. anterior ramus of S3? (sympathetic/parasympathetic) (preganglionic/postganglionic) [2 answers]
e. a white communicating ramus? (sympathetic/parasympathetic) (preganglionic/postganglionic)
f. a gray communicating ramus? (sympathetic/parasympathetic) (preganglionic/postganglionic)
g. the sympathetic trunk? (sympathetic/parasympathetic) (preganglionic/postganglionic)
h. a sympathetic splanchnic nerve? (sympathetic/parasympathetic) (preganglionic/postganglionic)
i. the nerve to the adrenal medulla? (sympathetic/parasympathetic) (preganglionic/postganglionic)
j. the pelvic splanchnic nerve? (sympathetic/parasympathetic) (preganglionic/postganglionic)
k. cranial nerves III, VII, IX, X? (sympathetic/parasympathetic) (preganglionic/postganglionic)

2. Reread your notes on the sympathetic nervous system, read pp. 445-451, and again examine Fig.16.5 and also Fig. 16.4.
   a. Why are gray rami gray and white rami white?
   
   b. How many pairs of white communicating rami are there? Why are there no white communicating rami above T1 or below L2?
   
   c. How many pairs of gray communicating rami are there? Why are there more gray rami than white?
3. Now consider the information in #1 & #2 from a different direction. List specific locations for the following features:
   a. sympathetic preganglionic cell bodies ________________________________
   b. parasympathetic preganglionic cell bodies (4) _________________________
   c. sympathetic preganglionic axons (6) _________________________________
   d. parasympathetic preganglionic axons (7) ____________________________
   e. sympathetic postganglionic cell bodies (3) ___________________________
   f. parasympathetic postganglionic cell bodies _____________________________

4. Which endocrine organ(s)
   a. has chromaffin cells? ______________________
   b. has an isthmus? _________________________
   c. is 4 physically separate organs? _________________________
   d. has follicles (2)? _______________________
   e. does not produce the hormones it secretes? _________________________
   f. does not store or secrete all the hormones it produces? ________________
   g. produce steroid hormones (3)? ________________________________

5.a. Where does fertilization occur? ______________________
   b. When does it occur, from the time of ovulation? ________________
   c. List where in the female reproductive tract, and when (days from fertilization) the following events occur.
      a. cleavage-
      b. implantation-
      c. gastrulation-
      d. placentation-

6. Word roots (FYI: List & define a word that uses each of these roots)
   placenta- lact- cyst-
   troph- blast- -mere
   rami- decidua splanchn-
   partur- obstetr- acinus

Review Worksheet 5 – Page 2 of 3
Anatomy Educational Objectives

XVII. Autonomic Nervous System
1. Compare the general organization of the somatic nervous system to that of the autonomic nervous system.
2. Diagram and label the general anatomy of an autonomic pathway.
3. Describe the specific location of the following features in both the sympathetic and parasympathetic nervous systems: preganglionic neuron (cell body and axon); ganglia; postganglionic neuron (cell body and axon).
4. Diagram and label the anatomy of a sympathetic pathway, indicating 4 possible routes of a sympathetic preganglionic axon.
5. Describe the role of the adrenal medulla as a segment of the sympathetic nervous system.
6. State the name and numbers of the cranial nerves involved with the parasympathetic nervous system.
7. Describe the location & structure of autonomic plexuses, naming one example.
8. Describe the general responses of the sympathetic and parasympathetic systems.
9. Create a summary chart comparing the sympathetic & parasympathetic systems with respect to origin from CNS, location of ganglia, fiber lengths, divergence, and effects.

XVIII. Endocrine System
1. Differentiate between an exocrine and an endocrine gland.
2. Create a chart comparing the nervous and endocrine systems with respect to mechanism of control, cells affected, time for onset of action, and duration of action.
3. Describe the role of the hypothalamus as an endocrine gland.
4. Differentiate the two segments of the pituitary gland with respect to embryological origin, blood supply, and connection to the hypothalamus.
5. State the location of and hormone secreted by the pineal gland.
6. Describe the location and structure of the thyroid gland, and the unique chemical composition of its hormones.
7. Describe the location of the parathyroid glands.
8. Describe the structural and functional distinctions between the two parts of the adrenal gland including the hormones secreted by each.
9. Describe the endocrine portion of the pancreas.
10. State the endocrine portions of the gonads and the chemical nature of the hormones secreted by each.

XIX. Developmental Anatomy
1. Draw and label a time-line indicating the 3 major stages of development.
2. Describe the location and timing of fertilization.
3. List the 3 major events of the preembryonic stage.
4. State the timing and result of cleavage.
5. Sketch and label the features of a blastocyst, and indicate the developmental fate of each part.
6. Describe the timing, location, and mechanism of implantation.
7. Describe the timing and mechanism of embryogenesis, and the fate of the 3 primary germ layers.
8. List the 4 embryonic membranes and the general function of each.
9. Describe the formation and function of the placenta.
10. Briefly summarize the events of the fetal stage.
11. State some of the significant changes in maternal anatomy during pregnancy, and their physiological consequences.
12. Describe the general anatomy and internal organization of a mammary gland, including the path of milk flow.

XX. Examples of some integrative objectives
Exam V
1. Name at least three types of motor axons that might be found in the anterior ramus of a spinal nerve.
2. List at least 3 classical endocrine organs that also have significant non-endocrine functions.