Diencephalon, Brainstem, and Cerebellum

1. 3 parts of the diencephalon.
2. Role of thalamus
3. Role of epithalamus
4. Roles of hypothalamus
5. Functions of cerebellum
6. 3 parts of brainstem
7. Two parts of the midbrain
8. Disease associated with death of cells in substantia nigra
9. One role of the colliculi
10. 2 functions of pons
11. Define Hering-Breur reflex
12. 5 functions of Medulla oblongata
1. 3 parts of the diencephalon.
   - thalamus, hypothalamus, epithalamus

2. Role of thalamus:
   - Relay station for all information traveling between the cerebrum and the brainstem.

3. Role of epithalamus:
   - Pineal gland is located here and it releases melatonin in the dark. Melatonin makes us sleepy.

4. Roles of hypothalamus
   - The hypothalamus controls the pituitary gland. Since the pituitary gland releases 9 hormones, so the hypothalamus ultimately regulates release of:
     - reproductive hormones
     - growth and repair hormones
     - stress hormones
     - metabolism/fat-burning hormones
     - water balance/thirst hormones
   - Regulates body’s temperature (turns up the “thermostat” during infections, resulting in fever)
   - Can modulate the medulla oblongata’s control of HR, blood pressure and breathing
   - sleep cycles
   - connected to the limbic system via the fornix, so emotions affect control of all these areas and help explain psychosomatic illness

5. Functions of cerebellum
   - coordination of fine motor skills; spatial skills; puzzle solving

6. 3 parts of brainstem
   - midbrain, pons, medulla oblongata

7. Two parts of the midbrain
   - cerebral peduncle
   - corpora quadrigemina (AKA superior and inferior colliculi)

8. Disease associated with death of cells in substantia nigra
   - Parkinson’s disease

9. One role of the superior and inferior colliculi
   - eye and hearing reflexes that help us move away from quickly approaching objects

10. 2 functions of pons
    - “bridge” between cerebellum and cerebrum; and between cerebrum and spinal cord
    - helps regulate breathing

11. Define Hering-Breuer reflex
    - Reflex that prevents the lungs from overinflating

12. 5 functions of Medulla oblongata
    - Controls HR: cardioacceleratory and cardioinhibitory centers
    - Vasomotor centers: control blood vessel constriction and therefore BP
    - Lack of blood/brain barrier allows sampling of toxins in blood: vomiting reflex
    - coughing/sneezing reflexes
    - deliver motor output to spinal cord—the pyramidal tracts cross here, causing the right side of the precentral gyrus to ultimately control the left side of the body; and the left side of the precentral gyrus to ultimately control the right side of the body.