Biology 358 - Neuroanatomy
Second Exam

Please **print your name clearly** on the back of the last page of this exam. Please read the instructions preceding each section carefully.

Section 1:Diagram labeling. The following pages are unlabeled diagrams of either spinal cord or some portion of the brain. Utilizing the blue pen supplied to you, label the following structures on the diagram. **Outline the area in the diagram where the structure would be found, and then extend a line from the diagram out to the white margin. (You need to do this on one side only)**. In the white margin label the outlined segment with the number found to the left of the structures listed below. ***If the structure requested is not found on that particular section then you need to put the number of the structure in the margin, mark it with NFOS, and circle it.*** (2 points each)

HBS-12: Transverse section through the upper pons.

1. Structure that is the major afferent route for the cerebellum

2. Pathway carrying information about conscious proprioception, vibration, and fine touch.

3. Pathway carrying information about pain, temperature, crude touch and pressure.

HBS- 9: Figure illustrating the relationship between the upper medulla and the cerebellum

4. Structure that contains afferent information for the cerebellum, but is not the major afferent route for the cerebellum.

5. Large cell reticular formation

6. Small cell reticular formation

7. Pathway carrying information about conscious proprioception, vibration, and fine touch.

8. Pathway carrying information about pain, temperature, crude touch and pressure.

HBS-14: Transverse section through the inferior colliculus and the rostral portion of the pons.

9. Pathway carrying information about conscious proprioception, vibration, and fine touch.

10. Pathway carrying information about pain, temperature, crude touch and pressure.

11. Mesencephalic reticular formation

12. UMN fibers that originate in the cerebral cortex and have already decussated.

HBS-16: Transverse section of the upper midbrain.

13. UMN fibers that originate in the cerebral cortex and have already decussated.

14. UMN fibers that originate in the cerebral cortex.

15. Pathway carrying information about conscious proprioception, vibration, and fine touch.

16. Pathway carrying information about pain, temperature, crude touch and pressure.

17. A nucleus that forms a considerable part of the mesencephalic reticular system. This structure is subdivided into the Magnocellular and parvocellular portions. This structure is thought to give rise to the rubrospinal tract.

18. Large motor nucleus of the extrapyramidal motor system that is subdivided into the pars compacta and the pars reticularis. This nucleus sends information to, and receives information from the basal ganglia.

HBS-19: Oblique section through the diencephalon at an intermediate level

19. Relay nucleus for the visual system.

20. Relay nucleus to the auditory cortex.

Section 2: **Essay questions.** You *must* answer questions 21 & 22. Then you must answer *either* # 23 or # 24 on the accompanying sheets of blank paper. Each question is worth 20 points.

21. (20 points) The pons and olive are closely linked to the normal functioning of the cerebellum. Discuss this linkage *and* compare and contrast the functions of the pons and olive.

22. (20 points) There are five principal signs of cerebellar dysfunction.
    (a) List these five principal signs
    (b) *Pick just one of these signs* and explain how such a dysfunction sheds light on the *normal* functioning of the cerebellum.

23. (20 points) Discuss the anatomy and function of the Red Nucleus

24. (20 points) Discuss the afferent and efferent connections of the cerebellum.