FYI → LABEL ASSIGNED FEATURES on: Fig. 13.3, 13.4, 13.5, 13.6, 14.1, 14.2, 14.7, 14.19, 15.1, 15.2, 15.4, 15.5, 15.9, 15.16, 15.23a (NRF CN VII→XII), 17.5b & d, 17.7, 17.10, 17.11b & c, 17.20a, 17.21, 17.22, 17.23

1. Review text Fig. 14.2b, 14.8, & 14.19 & your notes. Where in those figures are

a. cell bodies of sensory neurons detecting touch in your toes located (not the posterior gray horn)? ______________________

b. cell bodies of skeletal motor neurons to muscles that wiggle your toes located? ______________________

c. cell bodies of visceral motor neurons innervating sweat glands of the feet located? ______________________

2. Which muscle is/are responsible for

a. closing the eyelid? ______________________

b. altering lens thickness? ______________________

c. opening the eyelid ______________________

d. constricting the pupil? ______________________

e. dilating the pupil? ______________________

f. reducing the intensity of sound (2): ______________________

g. Which of the above are intrinsic eye muscles?

h. Which of the muscles (a. → f.) are smooth muscle? which are skeletal muscle?

3. Which glial cell(s)

a. form myelin sheaths? (2) ______________________

b. are found in the PNS? (2) ______________________

4. Which region/structure of the brain (be as specific as possible)

a. is the site at which most motor pathways cross from left to right? ______________________

b. regulates voluntary, skilled movements? ______________________

c. interconnects medulla, midbrain, and cerebellum? ______________________

d. is involved in visual and auditory reflexes? ______________________

e. is the major relay center for sensory information? ______________________

f. is the primary regulator of the ANS & endocrine system? ______________________

5. Damage to the dorsal root of a spinal nerve would cause (paralysis/loss of sensation) whereas damage to the ventral root would cause (paralysis/loss of sensation).

6. Match features to brain region.

| ___ olives | ___ pineal gland | A. medulla oblongata |
| ___ pyramids | ___ superior colliculi | B. cerebellum |
| ___ vermis | ___ peduncles (2 answers) | C. midbrain |
| ___ folia | ___ basal nuclei | D. diencephalon |
| ___ infundibulum | ___ insula | E. cerebrum |

7. What is the structural difference between an axolemma and a neurilemma? (Include the cell each is a part of.)
8. a. Which specific special senses covered in your lecture notes are detected directly by neurons? [Only 2! – But maybe 3 😊]

b. Which specific special senses covered in your lecture notes are detected by hair cells? (4)

9. Word roots

| plexus- | dura- | denticulate- | lacri-
|--------|-------|-------------|-------|
| arbor- | macula- | pons- | folia-
| mater- | cochlea- | arachnoid- | cauda-
| tympano- | gloso- | vagus- | vitae-
| trigeminal- | palpabra- | equina- | fornix-
| lutea- | trochea- | ramus- | |

10. a. List the subdivisions of the bony labyrinth and the fluid they contain.

b. Complete the following chart.

<table>
<thead>
<tr>
<th>Hair cells in the:</th>
<th>are stimulated by:</th>
<th>and detect:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ampullae</td>
<td>gravity</td>
<td>hearing</td>
</tr>
<tr>
<td></td>
<td>linear acceleration</td>
<td></td>
</tr>
</tbody>
</table>

11. Classify the following structures as primarily gray matter (G) or primarily white matter (W).

<table>
<thead>
<tr>
<th>basal nuclei</th>
<th>inferior colliculus</th>
<th>anterior column</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN VI</td>
<td>dorsal root ganglion</td>
<td>lateral horn</td>
</tr>
<tr>
<td>anterior rootlet</td>
<td>nucleus of origin of CN IV</td>
<td>olive</td>
</tr>
<tr>
<td>posterior ramus of T₁₂</td>
<td>arbor vitae</td>
<td>cerebral cortex</td>
</tr>
<tr>
<td>corpus callosum</td>
<td>cerebellar peduncles</td>
<td>hypothalamus</td>
</tr>
<tr>
<td>infundibulum</td>
<td>decussation of pyramids</td>
<td>thalamus</td>
</tr>
</tbody>
</table>

DO THE FOLLOWING SEQUENCE QUESTIONS ON A SEPARATE SHEET OF PAPER, and staple it to this sheet.

12. Trace the path of CSF from its site of formation in a lateral ventricle (include cell and structure responsible) to its return to the blood.

13. List in sequence the layers a needle would pass through in the sciatic nerve before reaching the axoplasm of a myelinated axon.

14. List, in sequence, the path of vibrations starting at the pinna to hair cells of the spiral organ of Corti. (Include only structures/fluids covered in lecture, not the additional structures covered in your text.)

15. Starting at the cornea, list in sequence the structures, chambers, and fluids a photon of light transverses before impinging upon your central fovea.
Anatomy Educational Objectives

XIII. Nervous Tissue
1. Sketch an overview of the nervous system, indicating the interrelationships between the CNS & PNS, and between the 3 divisions of the PNS.
2. Sketch and label the parts of a typical neuron.
3. Differentiate between the terms axolemma, axoplasm, and axon collateral.
4. Define the 4 structural and 3 functional categories used to classify neurons.
5. Describe how neuroglia differ from neurons.
6. List 6 types of neuroglia and describe their location (CNS, PNS), appearance, and function.
7. Describe the formation and function of the myelin sheath and state the cells responsible for its formation.
8. Differentiate between a nerve, tract, ganglia, and nucleus.
9. List the 3 connective tissue coats of a typical nerve from superficial to deep, and describe what structure each ensheaths.

XIV. Spinal Cord & Nerves
1. Describe the external gross anatomy of the spinal cord, including enlargements and fissures.
2. List, from outermost to innermost, the spinal meninges and spaces that surround the spinal cord. Include the tissue composition of each meninx.
3. Sketch a cross-section of the spinal cord and label all assigned features.
4. State the precise anatomical location of: a skeletal motor neuron’s cell body, motor axon, cardiac and smooth muscle motor neuron cell bodies, general sensory neuron cell body, sensory axon.
5. Describe the difference between descending and ascending tracts and give an example of each.
6. Give three general functions for the spinal cord.
7. Sketch and describe the 5 components of a reflex arc.
8. Describe the two structures that join to form a spinal nerve, and the names and distribution of the two branches of a spinal nerve.
9. List the types, and number of each type, of spinal nerves. Which form plexuses?
10. Define a dermatome and state their clinical importance.

XV. Brain and Cranial Nerves
1. List the 3 main division of the brain and the components of each.
2. Compare the cranial meninges to the spinal meninges.
3. Describe the location and function of the three cranial folds of dura mater.
4. Sketch the four brain ventricles and their interconnections.
5. Describe the function, formation, circulation, and reabsorption of cerebrospinal fluid.
6. Describe the blood supply of the brain and the significance of the blood-brain barrier.
7. Describe the features and functions of the medulla oblongata.
8. Describe the location and function of the pons.
9. Describe the features and function of the midbrain.
10. Describe the features and functions of the diencephalon.
11. Describe the features and functions of the cerebellum.
12. Describe the gross anatomy of the cerebrum, including all fissures and lobes.
13. State the general location of cerebral white matter, the three types of tracts, and the function of each.
14. Describe the general structure and location of the basal nuclei and limbic system.
15. Give general functions for the assigned features of the cerebrum.
16. List the name, number, function, and point of attachment to the brain of each cranial nerve.
17. Be able to state if a given brain region/feature is primarily gray matter or white matter.

XVI. General and Special Senses
1. Differentiate sensation from perception.
2. Sketch the basic pathway by which a stimulus is perceived.
3. Define and give an example of a sensory modality.
4. List and define 5 categories into which sensory receptors are classified according to the stimulus they detect (modality), and give an example of each.
5. Describe the difference between a general sense and a special sense, giving examples of each.
6. List and define the 3 categories into which sensory receptors are classified according to the origin of the stimulus they detect, giving examples of each.
7. Describe the location, structure, and function of tactile corpuscles, lamellated corpuscles, and hair root plexuses.
8. List three chemical special senses, describe the location and histology of their receptors, and the cranial nerves involved with each.
9. Sketch and label the three regions of the ear, including the structures found within each subdivision.
10. List the divisions of the bony labyrinth and the portions of the membranous labyrinth found within each.
11. Describe the location, arrangement, and stimulus detected by the receptor cells for sound, static equilibrium, and dynamic equilibrium.
12. List in sequence the structures vibrated by sound waves as they travel to hair cells in the spiral organ of Corti.
13. Describe the accessory structures involved with the eyeball.
14. List the six muscles involved in eye movement and the cranial nerve controlling each.
15. Sketch and label the features of an eyeball, organizing structures by layers. List the function of each feature.
16. Describe the histology of the retina.
17. Describe the chambers and fluids within the eyeball.
18. Trace the path of a photon of light through the eye, listing in sequence the structures and fluids through which it passes.
19. Describe the visual pathway taking information to the cerebrum.

➢ Recall and apply the assigned Deeper Insights for these chapters.