Ch 8 Special Senses – Test Review

1. List the structure and function of the following in the eye diagram:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Function</th>
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</thead>
<tbody>
<tr>
<td>A Lens</td>
<td>Focuses light on the retina</td>
</tr>
<tr>
<td>B cornea</td>
<td>Clear anterior portion of sclera that allows light to enter eye</td>
</tr>
<tr>
<td>C Ciliary body</td>
<td>Smooth muscle that controls shape of lens</td>
</tr>
<tr>
<td>D Choroid</td>
<td>Dark pigmented middle layer that prevents light from scattering inside eye</td>
</tr>
<tr>
<td>E Retina</td>
<td>Contains photoreceptors that respond to light</td>
</tr>
<tr>
<td>F Fovea centralis</td>
<td>Area of sharpest vision that contains only cones</td>
</tr>
<tr>
<td>G Vitreous humor</td>
<td>Helps prevent eyeball from collapsing inward</td>
</tr>
</tbody>
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2. Describe the three layers or tunics of the eye:
   Sclera – outer layer; white of the eye; anterior part modified to form clear cornea
   Choroid – middle pigmented layer
   Retina – inner sensory layer containing millions of photoreceptor cells (rods and cones)

3. Which tunic layer prevents light from scattering in the eyeball? Choroid

4. Describe the cause and symptoms of the following homeostatic imbalances:
   Glaucoma – increased intraocular pressure; pain and possible blindness
   Cataracts – increased hardening of lens with age; hazy vision and possible blindness
   Pinkeye – bacterial or viral infection of conjunctiva; redness and irritation in eye
   Ataxia – damage to cerebellum or inner ear; lack of balance, uncoordination
   Night blindness – prolonged vitamin A deficiency; hinders night vision
   Colorblindness – lack of one or more cone types; inability to distinguish certain colors
   Myopia – shape of eye causes convergence of image in front of retina; nearsightedness
   Hyperopia – shape of eye causes convergence of image behind retina; farsightedness
   Presbyopia – decrease in lens elasticity due to age; farsightedness
   Conduction deafness – interference with conduction of sound vibrations; hearing loss
Sensorineural deafness – degeneration or damage to receptor cells in the organ of Corti; hearing loss
5. Why do we have a blind spot in our vision? When light from an object is focused on our optic disc (which contains no photoreceptors), it disappears from view
7. Where are rods located on the retina? Most dense at edge for peripheral vision
8. Name the three cone types. Green, red, blue Where are cones located? Densest in the center of the retina and decrease toward the edge
9. What is the fovea centralis? Area that contains only cones
10. Describe the secretions of the following:
    Meibomian glands – oil
    Ciliary glands – sweat
    Lacrimal glands – dilute salt solution
11. Describe the function of lysozyme as a component of our tears:
    Enzyme contained in tears that kill bacteria
12. Describe the function of the two humors in the eye
    Aqueous – watery fluid anterior to lens; maintains pressure and provides nutrients to lens and cornea
    Vitreous – gel-like fluid posterior to lens; maintains intraocular pressure
13. Define the following:
    Accommodation – adjustment of eye for close vision
    Convergence – movement of eyes medially for close vision
    Pupillary reflex – reflexive constriction of pupils for close vision or when exposed to bright light
14. Describe the vision pathway from the cornea to the visual cortex:
    Through cornea to retina, optic nerve, optic chiasma, optic tract, to visual cortex of occipital lobe
15. What is the difference among photoreceptors, chemoreceptors, and mechanoreceptors?
    Responds to light, chemicals, and movement (vibrations), respectively
16. Eardrum is also known as: tympanic membrane
17. Where are hearing receptors located? In the organ of Corti located in the cochlea
18. Name the structures of
    The external ear: pinna (auricle) and external auditory canal
    The middle ear: tympanic membrane, ossicles
    The inner ear: cochlea, vestibule, semicircular canals
19. What are the Latin names for the ossicles?
    Hammer - malleus
    Anvil - incus
    Stirrup – stapes
20. Structure responsible for our sense of static equilibrium: vestibule
21. Structure responsible for our sense of dynamic equilibrium: semicircular canals
22. Name the types of projections found on the dorsal tongue surface: filiform, fungiform, and circumvallate papillae
23. Name the five basic taste bud types and the substance to which they respond:
Sweet – sugar, saccharine, some amino acids; sour- acids, bitter-alkaloids, salty- metal ions in solution, umami – savory (glutamate)

5 Extra Credit Questions (1 point each) – Nervous System Review