1.5 pts (0.25 pts each) Order these from 1-6 according to how sound makes it's way from the environment to being transduced to a neural signal.

- Auditory nerve
- Cochlea
- Ossicles (Malleus → Incus → Stapes)
- Oval window
- Pinna
- Tympanic membrane

0.5 pt Cranial Nerve VIII contains a mix of which sense information?

a. Visual and vestibular  
b. Visual and auditory  
c. Auditory and vestibular  
d. Visual, auditory, and vestibular

2 pts (0.5 pts each)

The endolymph is fluid that is found in the ____________ of the auditory system. It is rich in the ion ____, which __________ the membrane potential of hair cells when it flows into them, but has less of ______, the ion responsible for triggering the action potential in other neurons.

1 pt (0.5 pts each) Circle the appropriate answers.

Displacement of the [ampulla / cilia / macula] on the hair cell leads to ion channels opening, causing the hair cell to depolarize. The ion channels open due to [chemical / diffusive / electrical / mechanical] forces.

1 pt (0.25 pts each) Circle each of the following structures that receive inputs from the vestibular system

- amygdala
- cerebellum
- spinal cord
- thalamus

2 pts (0.5 pts each): Label each of the following as OO (Otolith organs) or SC (semicircular canals)

- Detects head rotations
- Endolymph displaces the cupula signaling a change
- Contains striola (“little stones”)
- Contain the saccule and utricle

2 pts: According to the opponent process theory, how would an intense green light be represented by retinal ganglion cells? Only discuss the parvocellular (cone) ganglion cells here...

**BONUS (1 pt)** What is the theory presented in class as to why inconsistent information between the vestibular system and vision leads to vomiting?