**Title: Laboratory 6/7- Sensory Physiology**

**Purpose: To understand the three components of sensation and the ultimate role of the interpretation centers. Also, learning about the basic types of receptors and hoe they operate and understand about the accommodation and sensory adaption. Knowing the role of the mechanism or interesting coding and receptors location on perception. Finally, know the basic auditory and visual tests and the difference lights conditions in which the rods or the cones works and the role of the rods in a dim lights vision.**

**Procedure:**

**A-1 1.With your partner's eyes closed, apply two caliper pinpoints as closely together as possible on your partner's skin on the palm of his/her hand.**

**2.Remove the pins and move them 1 millimeter apart. Reapply the caliper points to your partner's skin. Repeat this procedure until your partner can discriminate two distinct points.**

**3.Record this distance between pins at which your partner can discriminate two separate caliper points.**

**4.Compare results obtained from the following areas:**

**a. palm of hand**

**b. back of hand**

**c. fingertip**

**d.outer edge of the lips**

**e. back of neck**

**5. Have your partner repeat this experiment on your skin.**

**6. Interpret the results you have obtained**

**A-2 1.Place your left fingers in 15C water and your right fingers in warm water (37C) andrecord the sensation of each. Keep hands immersed for 2 minutes.**

**2.After two minutes, describe the sensation in each hand.**

**3.Remove hands and promptly place them both in 25C water. Describe the immediate sensation in each hand.**

**6/7B 1.Block your left nostril. Uncork and hold the bottle of camphor oil under your nose until you can no longer detect the camphor.Do not consciously sniff the contents of the vial!Record the adaptation time.**

**2.Remove the camphor and place the bottles of cloves, then peppermint oil under your nose. Distinguish the smells of cloves and peppermint oil.**

**3.Uncork and hold the bottle of camphor under your nose again until the smell is no longer recognized. Record this second adaptation time**

**4.Unblock your left nostril determine if the camphor is detected.**

**5.Interpret these results.**

**C-1 1. Plug your left ear with cotton or hold your hand over it and test the right ear.**
**2. Hold the handle of a vibrating tuning fork to the right mastoid process.**
**3. When the sound disappears, move the fork near the external auditory canal.**
**4. Reappearance of the sound indicates no middle ear damage.**
**5. Repeat the test with your left ear**
**6. Record the results for each ear.**
**C-2 1. In a quiet room, the instructor will demonstrate the proper method of operating the audiometer.**
**2. Audiometry tests will be conducted in pairs. Each student will take his/her partner's audiogram.**
**3. Record your results on the worksheet on page 44.**
**4. Analyze the audiograms in the following way:**
**a. Average the values obtained for each ear for the frequencies of 500 Hz, 1000 Hz, and2000 Hz.**
**b. Subtract 26 from each average.**
**c. If the difference is greater than 26, multiply this number by 1.5%. This equals the percent impairment of each ear.**
**5. To determine the percent of binaural impairment perform the following calculation:Binaural impairment =(% impairment of good x 5) + (% impairment of bad ear)66. Record the results of these calculations.**

**6/7 D 1.A student volunteer will be seated on a swivel stool with his/her head bent 30 forward.**
**2.The instructor will spin the student rapidly to the right for 10 turns.**
**3.The instructor will suddenly stop turning the student and have the student look straight ahead.**
**4.Observe and note the subsequent movement of the student's eyes**
**5.Explain these eye movements in terms of direction of endolymph movement.**
**6. These procedures will be repeated with a second student spun to the left.**

**E-1 1.Cover your left eye and focus the right eye on the center of the cross below.**
**2.Slowly Bring the page closer to your eye until the spot disappears.**
**3. Have your partner measure this distance from your eye to the page.**
**4. The image of the spot is now superimposed on the optic nerve. Explain the lack of vision at this point.**

**E-2 1.Stand 20 feet away from the Snellen chart. Cover your left eye.**
**2.Attempt to read the line designated "20".**
**3.If you cannot read line 20, attempt line 30, 40, 50, 70, 100 or 200 until a line is legible.Perform these attempts with your left eye, covering your right eye.**

**4.The Snellen chart is analyzed in the following way:Visual acuity =Distance you read the lettersLowest line read clearly at 20 feet.**

**E-3 1.Stand approximately 8–10 inches away from the radial astigmatism eye chart so that it fills your field of vision. Cover your left eye.**
**2.Focus on the lines in the vertical plane with your right eye.**
**3.If a blur appears in the lateral lines or the lines converge into one, you have an astigmatism in this plane of your eye.**
**4.Record the results of this test and repeat with the left eye.**

**E-4 1.Stare at different colored objects provided by your lab instructor for 30 seconds each, and then shift your glance to a white sheet of paper. These may include but not be limited to colored squares on white paper, stripes of various colors against white paper, colored flags or scenic views.**
**2.Record the negative after-images seen for each color.Were you able to predict any of these.**
**Color blindness Test**
**1.Obtain the Ichikawa colorblindness charts.**
**2.Attempt to read the numbers of each pattern on the test panels. (There are some“practice” panels before the actual test panels begin.)**
**3.After the first 10 test panels, if your score indicates color blindness, continuewith the next five test panels to determine which color deficiency exists.**
**4.Record your results on the worksheet on page46**

**E-5 1.Seat yourself before the perimeter board with your right eye at the edge of the semicircle. Cover your left eye. Stare at the centerline.**
**2.Your lab partner will introduce several different colored blocks into your field of vision.Identify these blocks by color. Don't Take your eye from the center of the chart or uncover your left eye.**
**3.Your partner will record the degree at which the colors were discriminated on the perimetry scoresheet on page47.**
**4.Repeat these procedures for each block for both the horizontal and vertical perimetry charts. Record the data and connect the same colored dots to form an outline of cone placement of your right eye on your data sheet.**
**5.Explain these results in regards to cone placement in your retina.**
**E-6 1. The room will be darkened for a period of 15-20 minutes during this exercise.2. As soon as the lights are extinguished, the instructor will produce an object on the front desk. After your dim-light vision improves, attempt to draw this object in detail. 3. At the end of the darkness period, reexamine your drawings and improve it, if necessary.4. When the**

**lights are turned on, identify the object on the front desk and compare it to your drawing.5. Explain any increase in visual sensitivity in terms of rod photochemistry.**
**E-7 1.The instructor will connect EOG electrodes to the head of a student. Diagram the experimental setup.**
**2.Once a trace is obtained, the student will perform the following activities:**
**a. Casually glance at a stationary object.**
**b. Follow a moving object.**
**c. Read a few lines.**
**d. Intently stare at an object**
**.3.Record the results of these activities.**

**6/7 F 1.Extend your tongue and pat it dry with a paper towel.**
**2. Dip a cotton swab into a 25% salt (NaCl) solution and gently dab the solution onto the surface of the tongue. Diagram the locations where the salt solution is detected.**
**3. Swab the tongue with distilled water and pat it dry.**
**4. Repeat these procedures in order to map the responsive areas for each of the following solutions:a. Sweet (25% sucrose solution**
**b. Sour (25% vinegar solution)**
**c. Bitter (25% aspirin solution)**
**5. Explain the results of this mapping.**

**Results:**
**A-1**

a. **Palm of hand:10mm**
b. **Back of hand: 21mm**
c. **Fingertips: 4mm**
d. **Outer edge pf the lips: 8mm**
e. **Back of neck:18mm**

**A-2**

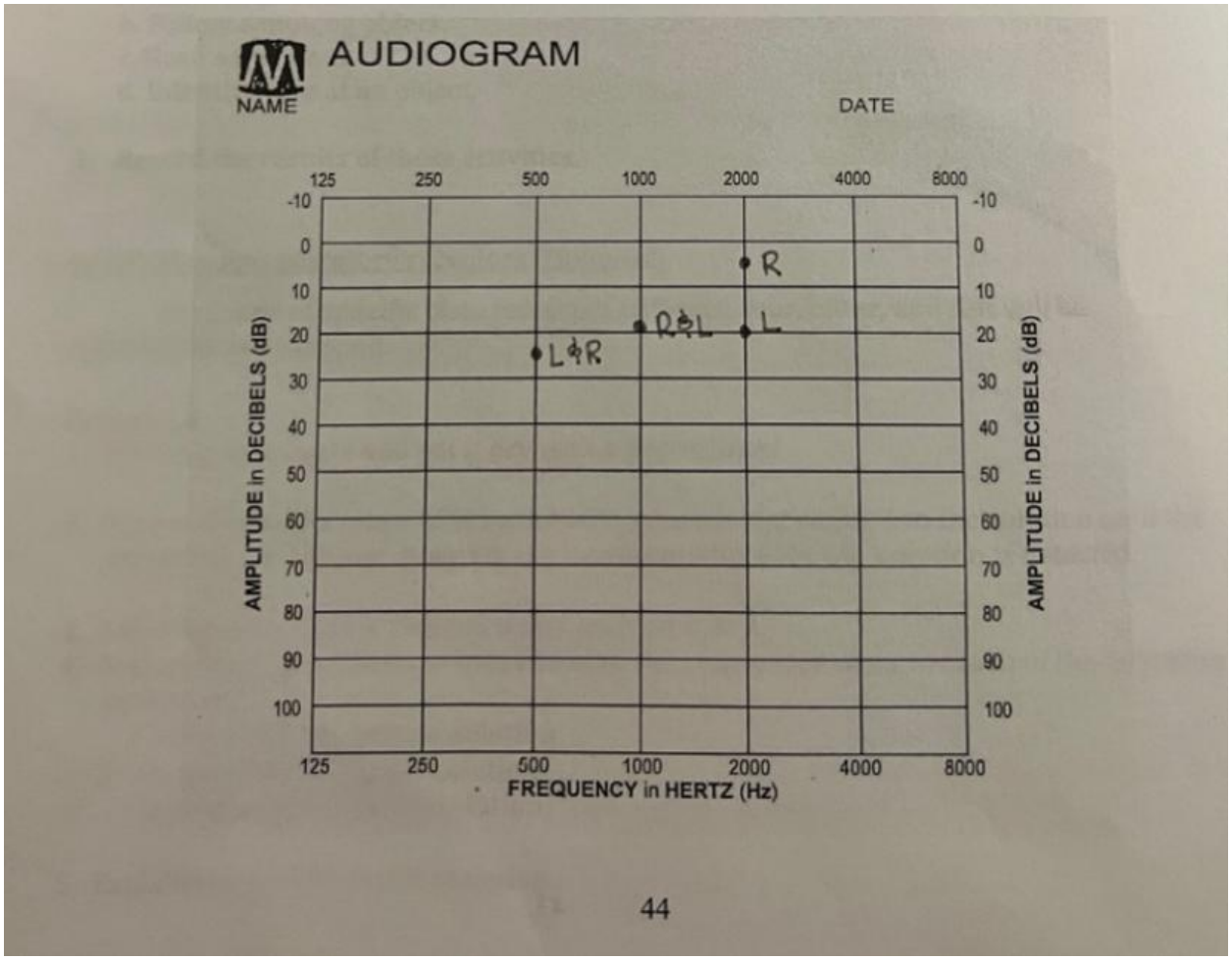
1. **Describe the immediate sensation in each hand?**

**Left hand was warm and right hand was cold and the change of this were phasic receptor cause they are sensitive to the change of temperature.**
**6/7B-1**
**Sense of smell**

| | |
|---|---|
| **Camphor oil** | **10 sec** |
| **Peppermint oil** | **4 sec** |
| **cloves** | **8 sec** |

**Adaption time: 7 secs**

**Unblock left nostril and check if camphor oil is detected: 5 sec until detected**
**C-2**




**6/7 D**
**The persons eyes moved rapidly after the chair was stopped spinning.**
**E-1 distance from the eyr to the page 13.5cm or 135mm**
**E-2**

| | |
|---|---|
| **Person 1 15ft/20ft** | **Hyperopia** |
| **Person 2 20ft/20ft** | **Normal** |

**E-3 8-4 blurry lines that were cross over lines**

**E-4**

# Score Sheet

Name

Screening Series

| Plate No. | Normal | R-G Defect |
|---|---|---|
| 5 | 57 +1 | 35 |
| 6 | 25 +1 | 2 |
| 7 | 43 +1 | invisible 5 |
| 8 | 18 +1 | 17 |
| 9 | 74 +1 | 21 |
| 10 | 2 +1 | invisible |
| 11 | 6 +1 | in- |
| 12 | 97 +1 | invinsible |
| 13 | 45 +1 | invisible |
| 14 | 5 +1 | 6 invisible |
| Total | 10 | 10 |

Classification Series

| Plate No. | Protan | Deutan |
|---|---|---|
| 15 | 7 | invinsible |
| 16 | 10 | invinsible |
| 17 | ~~invisible~~ 73 | invisible |
| 18 | invinsible | 5 |
| 19 | invisible | 2 |
| Total | 5 | 5 |

Result : (Normal)

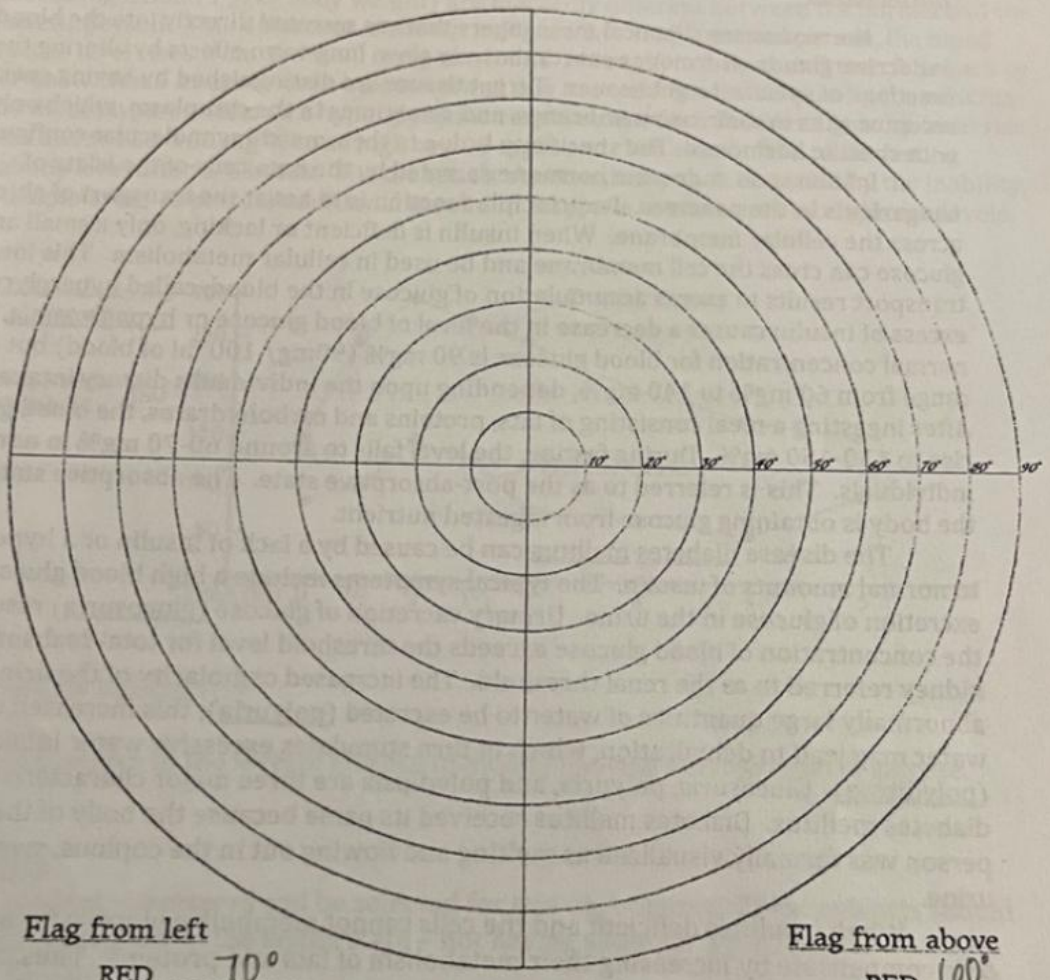
Protan

Deutan

Others

**E-5**

## Perimetry Mapping




**Flag from left**

RED 70°

GREEN 70°

BLUE 70°

**Flag from above**

RED 60°

GREEN 60°

BLUE 60°

**Flag from right**

RED 70°

GREEN 70°

BLUE 70°

**Flag from below**

RED 40

GREEN 40

BLUE 40°

**Discussion: A transitory, naturally occurring adaptation of your body, olfactory adaptation and also called nose blindness or olfactory fatigue—leads to an inability to identify or discriminate familiar scents in your environment. It happens when everyday odors in your environment start to fade or become imperceptible. We frequently relate regions where we spend a lot of time with nose blindness. That explains why humans frequently have trouble identifying typical home scents. Nose blindness should not be confused with anosmia, a disorder that causes your sense of smell to be significantly diminished or absent altogether.**

**Conclusion: In summary, we were able to comprehend three aspects of sensation. We employed a variety of receptors, such as gustatory, cutaneous, olfactory, photoreceptors, proprioceptors, and phono-receptors. We had the opportunity to test each of our five senses' functionality.**