

Opto 328

2nd mid-term Study Guide

Lecture 4, 5, and 6

The second mid-term is on Sunday Nov 24th, 2013 @ 8 am.

The purpose of this study guide is to organize your thought as you study for the exam.

Everything in lectures slide is included in the exam. If some topics doesn't included in the study guide, this doesn't mean you can skip it.

Exam Format:

- About 30-40 questions
- Multiple choice
- True/ False
- Fill in the blanks

After you study, make sure that you know the followings:

1. (Horizontal, Bipolar, and Gc)Function, Types, and How it response to light, NT
2. Center-surround organization of the receptive field (benifet? From where?)
3. Color opponency at the level of ganglion cells.
4. Definition of retinal illumination.
5. What is Light sense, color sense, form sense?
6. Absolute threshold and how to measure it.
7. Dark adaptation curve figure.
8. Duplicity theory of vision, Scotopic, and photopic vision.
9. The Differential Threshold, JND, Weber law.
10. Sensitivity regulation, lightness constancy, simultaneous contrast.
11. The range of visible spectrum and which wavelength absorbed by which parts of the eye
12. Principle of Univariance.
13. Young-Helmholtz Trichromatic color theory.
14. The different between one, two, and three photoreceptor retina.
15. Hue, saturation, and variation with intensity.
16. Additive and subtractive color?
17. Color opponent theory.

18. Arrangement of hues in the visible spectrum.
19. Complementary Hues.
20. Chromaticity Chart principle.
21. Resolving power of the eye, MAR, and VA.
22. What is spatial resolution? Nyquist limit?
23. Helmholtz sampling theory.
24. Aliasing (Def, when and where it occurs, how it perceived).
25. Def of spatial and temporal induction.
26. 4 methods to test VA.
27. How to calculate MAR from snellen fraction.
28. Hyperacuity.
29. PSF and how to calculate the minimum separation.
30. How GC response to different position of light.
31. Ricco's and Piper's Laws.
32. Visual persistence and CFF
33. Bloch's Law, Temporal Vision Laws
34. Response to invisible and very low flicker
35. ERG (what it measure? Each wave reflect activity of which neurons in Scotopic and photopic conditions)?
36. How to measure electrical activity of 3rd order neuron and RPE?
37. How to isolate rod and cone response?

Wish you all the best

Shatha