Exam: no trick questions that play with language. Usually, our first interpretation should be the right one, but we can also write down our interpretation, so Kiper can read it and correct our answers accordingly. Don’t overinterpret the statements.

Questions from Q&A session:

How do photoreceptors and rods adapt? Yes, they adapt. How? No one really knows as of now. Most mechanisms of adaptation have to do with biochemical reactions with the outer segments when capturing photons. These cascades are affected by Ca2+ (when Ca2+ enters photoreceptor affecting cascade and change in membrane potential) and other factors. Basically, the entry of different compounds. **Not important for this class**.

Model of perceptual sensitivity: how sensitivity of **individual cortical cells** is related to overall contrast. The hills are most sensitive at their maximum: go down and read the cycles per sec (the higher cycles per sec, the narrower the lines are).

Hierarchies: example: V4 receives feedforward input from V2 and gives feedback output to V2. V2 cells have axons that end in V4. V4 has cells that project in V2 back. So, V4 is at a higher hierarchy than V2.

Third pdf (retinal pathways 2): “Questions for next week”:

Simple cells have elongated ON and OFF centers, since they get input from LGN cells, whose centers are circular and therefore, the centers of simple cells is elongated (the sum of LGN cells, looks like a sausage).

1. There is input that is aligned with several LGN, that fire together under some circumstances. Thus, a V1 simple cell is orientation selective.
2. Complex cells receive input from different LGN cells and from simple cells (mainly simple cells, simple cells get input from different LGN cells). If simple cells have superimposed RF, then complex cells have a RF that has + and – at the same time (no clear ON or OFF regions).
3. Yes. The stimulus can be perfectly matched. When it is a bit changed, it will not respond so well anymore, therefore it is very orientation and spatial frequency selective. Simple cells have elongated subfields. A simple cell by definition has non-overlapping ON and OFF fields.

Correspondence problem: if there are no further assumptions, we cannot really know what the right configuration of the lights is. We will simply interpret them all at same depth (basically all next to each other). In real life situations, we get such situations right using heuristics (using assumptions).

Colour vision with PC: There is a high correlation. If L cone activated, then M cone also somewhat activated, due to very similar pigments.

In the retina, the cells before the photoreceptors are transparent. In the fovea, they are sort of pushed to the side, so photoreceptors are basically exposed.