1. No. It’s true that a neuron that respond specifically don’t respond to all input features, for example Y cell respond to movement in its receptive field, regardless of the direction of the movement (p152). It appears that direction information is lost, but it’s not, since we still have neurons that are sensitive to moving bar of different direction in LGN and Cortex. Similar situation arises when considering cell that respond to motion of object relative to the background(p154), in this case information of movement of the entire scene seems to be lost, but actually it’s still encoded in other cells like Y cell mentioned above. Other example includes cone photo receptor cell that respond to different wavelength of light, information contained in other wavelength of light is lost but they are actually encoded in other typed of cone cells. Specificity compress the information and made computation possible at all. Most relevant information, after all, reaches the cortex, since we still perceive them.

2. In rod-on bipolar cell pathway, rod cell presynaptically band pass filter out most chemical noise, and a rectification was applied to suppress noise caused by spontaneous activation of photo pigment.(p152)

3. Rectification is a non-linear way to generate response that it gives 0 response when input is below a threshold and gives linear response when input is above the threshold. Rectification suppress the contribution of a negative (or small positive) input to a summing process, which made a lot of computation possible. Examples of rectification include the suppression of noise in rod cells (p152), and detection of texture motion (p152).

4. Approaching motion cell. Because this kind of LGN neuron integrate information from on and off surrounding neuron arranged in its receptive field, they will respond to a static ring structure. (p154)

Object motion cell. If a center surround pattern is flickering, it will excite some on center bipolar cell and some off center bipolar cell, which generates response in RGC. (p154)

Cell responsible for motion extrapolation can also appear to have center surround receptive field, if the stimuli is flashing, since they have a center surround receptive field with a biphasic response transient.(p155)

5. Visual processing takes time, yet RGC cell at the location, even a little bit ahead of the position of the object fires when presented with a moving object. (p155)

6. Presynaptic inhibition happens before synapse, which means the output neuron itself is inhibited. Example of this include Relative motion detection neuron described in p154. For which periphery motion suppress motion signal presynaptically. Post synaptic inhibition means the summation of excitatory and inhibitory signal from different neurons. Example of this includes the detection of approaching motion described in p154. The important difference between this two types of inhibition is that inhibitory signal can cancel out excitatory signal in post synaptic inhibition, but for presynaptic inhibition inhibitory signal only suppress excitation by the neuron it affects, but not able to cancel out other excitatory input to the target neuron, it effectively function as rectification.

7. Some processing, like detection of approaching motion, is critical for the protection of the eye and the safety of the animal and require fast response, doing them in retina can make the response faster and better fulfill those functions.