Week 4

- 1. Kay and McDaniel categorized colors in six categories corresponding to focal colors red, green, blue, yellow, black and white. How do you think would the sets corresponding to each of these categories look on the chromaticity diagram? Can you accommodate all of them on the chromaticity diagram? If not, why? Illustrate using diagrams.
- 2. You are in a room and the tungsten bulb seems to be brightest object you see around. Suddenly a much brighter halogen light is brought in and the tungsten lamp suddenly seems to have a lackluster appearance. How do you explain this visual phenomenon?
- 3. You have difficulty in reading very small text on the screen. However, this difficulty reduces as you increase the size of the fonts. Explain this using CSF.
- 4. You are working in your office which receives good sunlight in the day time. Around dusk when it is getting dark, you find that it is difficult to read the text on the book. You light your table lamp and the text is again legible again. Explain this phenomenon with CSF.
- 5. In a movie auditorium, the projection system is used with mean luminance of 12-22 foot Lamberts for refresh rates of 48 Hz. However, it is said that a refresh rate has to be increased to 60 Hz for higher luminance projection system. Explain this with CSF.
 - 6. The image on the right shows four different objects A, B, C and D, which have different reflectance. It also shows the gray scale luminance values at the edges. From this information how can you tell if the illumination is continuous or not?
 - 7. The figure on the right shows an image segmented into three parts, A, B and C, based on the detection of edges between the regions. The chromaticity coordinates and the luminance in cd/m² on both sides of the edge between B and C are given in blue. The same for the edge between A and B is given in red. Based on this a person comments that there are more than one reason to believe that the former edge is due to illumination and





the latter is due to reflectance. Do you agree with him? Justify your answer.