Session Quiz (30 Marks)

Write your roll number IMMEDIATELY. Attempt ALL questions. Keep your answers BRIEF as irrelevant detail would be marked negatively. Questions that require pseudo-code should be answered ONLY with readable pseudo-code, no descriptions are necessary. Start answering ON your question paper (at the back as well) and attach additional sheets (with you ROLL NUMBER atop each sheet and sheet number) as necessary. If you have any issues, raise your hand.

1. How would you convert from RGB to HSI color model? [6]
2. Assuming that you wanted to detect objects in an image having a color \((r_s, g_s, b_s)\). How would you solve this problem assuming that you would like to maintain a range of \(d\) about each component for noise in the image? [4]
3. Write pseudo code for implementing erosion on binary images using a 3 by 3 structuring element of all one's. [4]
4. Write an algorithm for locating an object using hit or miss transform. [6]
5. Compare the advantages and disadvantages of using the first or second derivatives for edge detection? [4]
6. How can we detect lines oriented at 60 degrees with the x-axis? Is this an efficient technique for line detection? [6]