

**U.G. 5th Semester Examination - 2020**

**COMPUTER SCIENCE**

**[HONOURS]**

**Discipline Specific Elective (DSE)**

**Course Code : Com.Sc-H-DSE-P-501/PR**

**[PRACTICAL]**

**(Digital Image Processing Lab)**

Full Marks : 75

Time : 4 Hours

**Distribution of Marks:**

**Experiment : 60**

**Lab Note Book : 05**

**Viva-voce : 10**

Answer any **one** question on the lottery basis.

1. Write a programs in C/C++/MATLAB/SCILAB for image frequency domain filtering.
  - a) Apply FFT on given image.
  - b) Perform low pass and high pass filtering in frequency domain.
  - c) Apply IFFT to reconstruct image.

*[Turn over]*

2. Write programs in C/C++/MATLAB/SCILAB to remove noise using spatial filters.
3. Write a programs in C/C++/MATLAB/SCILAB to understand various image noise models.
  - a) Image restoration
  - b) Remove Salt and Pepper Noise
  - c) Minimize Gaussian noise
  - d) Median filter and Weiner filter
4. Write program to read and display digital image using MATLAB or SCILAB.
  - a) Resize given image.
  - b) Convert given color image into gray-scale image.
  - c) Convert given color/gray-scale image into black & white image.
  - d) Separate color image in three R G & B planes.
5. Write and execute programs in C/C++/MATLAB/SCILAB for image arithmetic operations.
  - a) Addition of two images
  - b) Subtract one image from other image

- c) Calculate mean value of image
  - d) Different Brightness by changing mean value
6. Write a program in C and MATLAB/SCILAB for edge detection using different edge detection mask.
  7. Write a program in C and MATLAB/SCILAB for wavelet transform on given image and perform inverse wavelet transform to reconstruct image.
  8. Write a program in C/C++/MATLAB/SCILAB to provides the thresholding an image and the evaluation of its histogram using histogram equalization and illustrates the relationship among the intensities (gray levels) of an image and its histogram.
  9. Write a program in C/C++/MATLAB/SCILAB to shows image rotation, scaling and translation using Geometric transformations.
  10. Write a program in C/C++/MATLAB/SCILAB to perform the Linear filtering using convolution in an image.
  11. Write a program in C/C++/MATLAB/SCILAB to enhance an image quality.
  12. Write a program in C/C++/MATLAB/SCILAB for morphological image operations-erosion, dilation, opening and closing.
  13. Write a program in C/C++/MATLAB/SCILAB for image enhancement using histogram equalization.
  14. Write a program in C/C++/MATLAB/SCILAB for segmentation of an image using watershed transforms.
  15. Write a program in C/C++/MATLAB/SCILAB to find histogram value and display histogram of a grayscale and color image.
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