'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 6th Semester Examination, 2022

DSE-P3-COMPUTER SCIENCE (DSE-63L) (PRACTICAL)

Time Allotted: 2 Hours | Full Marks: 20

The figures in the margin indicate full marks.
All symbols are of usual significance.

The question paper contains DSE63L-E1L and DSE63L-E2L and DSE63L-E3L.
The candidates are required to answer any *one* from *three* courses.
Candidates should mention it clearly on the Answer Book.

DSE63L-E1L

DIGITAL IMAGE PROCESSING LAB

Program:	**15**
Viva:	**5**
Total	**20**

Answer any *one* question of the following 20×1 = 20

1. Write a program to read an Image and perform the following operations:
   (a) Separate R, G and B planes.
   (b) Apply inverse log transformation on B plane.
   (c) Merge the R, transformed G and B planes to form a new image I2.

2. Write a program to read an Image and perform the following operations:
   (a) Convert it into grayscale.
   (b) Obtain Negative image.
   (c) Display the 8 bit plane binary images of the corresponding Negative image.

3. Write a program to read a image and perform the following operations:
   (a) Perform gamma transformation with the value of $\gamma = 0.25$ and $c = 1$.
   (b) Find the mean of the image.
   (c) Construct a binary image by considering mean as the threshold.

4. Write a program to read a image and perform the following operations:
   (a) Stretch the contrast from intensity r_1 to r_2, where r_1 and r_2 are user given.
   (b) Find the edges using Laplacian operator.
   (c) Rotate the edge image by 45°.

5. Write a program to read an image and perform the following operations:
   (a) Find the histogram of an image.
   (b) Perform histogram equalization.
   (c) Perform intensity slicing to preserve intensity r_1 to r_2 and set all the rest of intensities to 'O'. Here r_1 and r_2 are user given.

DSE63-E2L

INTRODUCTION TO DATA SCIENCES LAB

Answer any *one* question from the following 20×1 = 20

1. Write a program in R that returns the largest element in a list. 20

2. Write a program in R that prints a multiplication table for numbers upto 12. 20

DSE63-E3L

DATA MINING LAB

Programming:	**15**
Viva:	**5**
Total	**20**

Answer any *one* question of the following 20×1 = 20

1. Create Scatter plot from CSV in R. 20

2. Display all x-axis levels of barplot in R. 20

3. Write a program in R to find common rows and columns between two data frames. 20

4. Write a program in R to insert multiple rows in data frame. 20

5. Display all y-axis levels of barplot in R. 20

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