FOUNDATION UNIVERSITY ISLAMABAD

RAWALPINDI CAMPUS

Final Term Examinations (Spring-2020)

Programme: Software Engineering **Semester:** 8

Course Title: Digital Image Processing Lab **Section:** A& B

Instructor Name: Ms Fauzia Khan **Max Marks:** 35

Time Allowed: 5 hrs including Submission **Date:** 27th of July,2020

- ✧ Time duration has been allotted including your submission.
- ✧ The paper is an open book.
- ✧ Strict plagiarism rules will be applied.
- ✧ The submission of Paper should be done on both (**exams.fui.edu.pk),** LMS & Google class room.
- ✧ Join Ms Teams having webcam enable for each and every student.
- ✧ Paste screen shots for Matlab code, output screen for every step and question and Matlab code in one file and submit it in PDF format only.
- ✧ Place .m and .fig file for every question by its name in one folder and send its .rar file.
- ✧ Pre-condition: MATLAB installed and strong net connectivity.

Question#01: (10+2 Marks)

a) In Figure (1) below:

- If your first name starts from letter ‘A’ to ‘G’, then count the number for red objects and purple only. Also, calculate the total area covered by all red and purple objects only.
- If your first name starts from letter ‘H’ to ‘P’, then count the number for yellow and orange objects only. Also, calculate the total area covered by all yellow and orange objects only.
- If your first name starts from letter ‘Q’ to ‘Z’, then count the number for sky blue and green objects only. Also, calculate the total area covered by all sky blue and green objects only.

b) Explain and justify your solution with not more than three or four lines only.

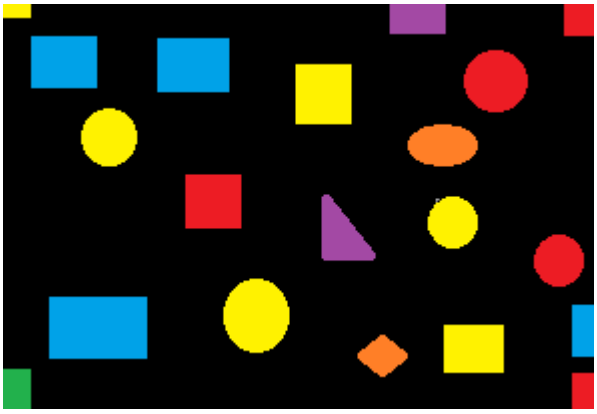

Figure 1

Question #02: (10+5+3Marks)

a) Create an image of by using MATLAB functions of zeros and ones. Each student should create first alphabet of his/her First Name and last name in middle of image.
You can create image size of your own choice.

For Example: For Fauzia Khan, Image should b like Figure 2:

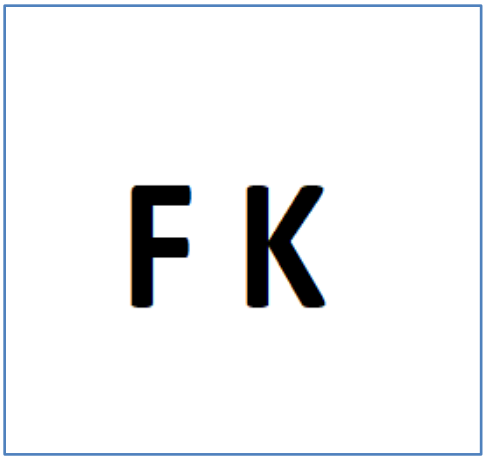

Figure 2

b) Resize the above image to half of its rows keeping column size same. For example if you create above image of 500 *500 then resize it to 250*500 without using Matlab Function "imresize ()".
c) Give explanation of your solution.

Note: Shapes of Alphabets on Digital displays will be easy to be created.

Question #03: (5 Marks)

The binary image in figure 3 is corrupted impulse noise. Describe any method which can remove this noise and explain your solution.

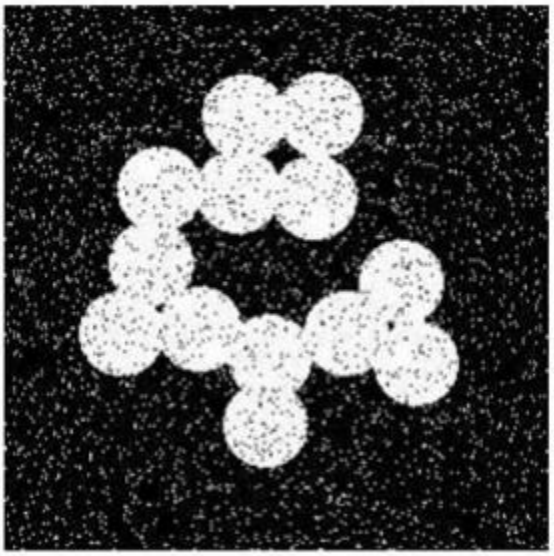

Figure 3