

## National University of Computer and Emerging Sciences, Lahore Campus



Course:	Fundamentals of Computer Vision	Course Code:	CS-495
Program:	BS(Computer Science)	Semester:	Fall 2016
Duration:	60 Minutes	Total Marks:	50
Paper Date:	21-Sep-16	Weight	15%
Section:	A/ B	Pages:	3 pages (6 sides)

Name: -----

Registration No: -----

Section: -----

### Problem 1: Short answers

(20 marks)

- A. Suppose you want to enhance details of an image in a specific direction. Which filter will you use?

\_\_\_\_\_

- B. \_\_\_\_\_ is imaging applications where the output images are for computer use.

- C. \_\_\_\_\_ is imaging applications where the output images are for human consumption

- D. What rays are used in Positron emission tomography?

\_\_\_\_\_

- E. Give seven components of electromagnetic spectrum (list them in order of their increasing frequency).

1.

3.

6.

2.

4.

7.

5.

- F. Give three applications of Acoustic Imaging

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

- G. Suppose you are given with the following mask. Can you guess anything about it? Also tell whether it is linear or non linear and uniform or non uniform. (marks 6)

-3	5	5
-3	0	5
-3	-3	-3

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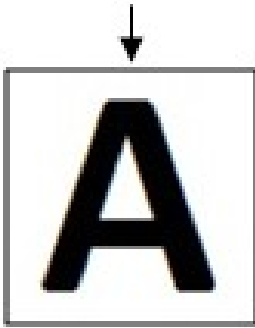
**Problem 2**

**(5 marks)**

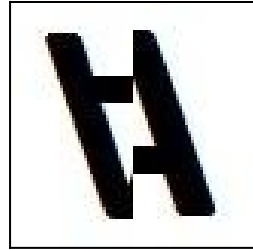
*Suppose we want to reduce 10 bit information containing 1024 grey level values down to 8 possible values. Map the quantized gray level values to the high end of each range. Also briefly describe the procedure.*

**Problem 3****(15 marks)**

Suppose you are given with the following 80x80 colored Image 'A.jpg'. Write Matlab code to flip the half image as shown below. (Note: Arrow at the top represents the half of the image and is not part of image)



A.jpg



Resultant image



**Problem 4****(10 marks)**

Zoom the following image using  $k$  times zooming, horizontally it should be zoomed 3 times and vertically 2 times.

20	60	20
40	76	40

