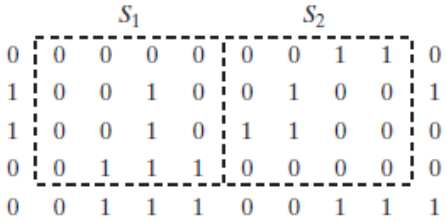
The LNMIIT Institute of Information Technology
Digital Image Processing (DIP)
I - Mid Semester Examination, 2013 – 2014

MM: 20 **Duration: 60 Min.**

1. Equalize a 10 x 10, 4 bit image with the following histogram :- [6]

Gray Level	No. of Pixels
0	8
1	7
2	6
3	6
4	8
5	11
6	10
7	9
8	6
9	3
10	2
11	1
12	5
13	4
14	10
15	4

2. Consider the two image subsets, S_1 and S_2, shown in the following figure. For V = {1}, determine whether these two subsets are (a) *4-adjacent*, (b) *8-adjacent*, or (c) *m-adjacent*. [1+1+2]



3. Consider the image segment shown. Let V = {0,1} and compute the lengths of the shortest *4-adjacent*, *8- adjacent*, and *m- adjacent* path between p and q. If a particular path does not exist between these two points, explain why. [1+1+1+1]

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4. The median, *M*, of a set of numbers is such that half the values in the set are below *M* and the other half are above it. Show that an operator *H* that computes the median of a subimage area, *S*, is nonlinear. [3]
5. What effect would setting to zero the lower order bit planes have on the histogram of an image in general? [2]
6. What is the use of *image negative* transformation on images? [1]