



NORTHERN UNIVERSITY

B A N G L A D E S H

Department of Computer Science & Engineering

Mid Term Examination, Fall 2021

Course Code: CSE 4351

Course Title: Image Processing and Computer Vision

NI

Time: 1hour 20mins

Total Marks: 20

Answer any two (02) questions.

1.

- a) Find 8-adjacent and m-adjacent pixels in the following matrix up-to all child starting with the indicated (red) pixel. 6

1	0	0	0	0	0	1
0	0	0	1	1	0	0
0	0	1	0	1	1	0
0	1	0	0	1	0	0
0	0	1	1	1	1	0
0	1	0	0	0	0	0
1	0	0	0	1	0	1

- b) Define connectivity with proper example. 2
- c) Discuss different kinds of adjacency that are available. 2

2.

- a) Draw city block distance for $r = 4$ and chessboard distance for $d = 7$ in time domain images. 3
- b) Define image. Discuss about the different phases of a digital image processing. 5
- c) Consider the data obtained as: 2 2 2 2 4 7 7 7 8 8 9 9 1 1 1 1 1 4. Compress it using RLE encoding technique. 2

3.

- a) Write some application of Digital Image Processing. 2
- b) Bit Plane Slicing helps to enhance image. You are given an image in the following section. Your job is to enhance the image by toggling the bits in 5th layer of intensity starting from the lowest level of intensity. 8

120	223	252	140	136
110	100	10	30	250
230	117	75	89	189
55	26	140	220	179
123	27	32	232	160

