NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA
Department of Information Technology
VII Semester B.Tech (IT) End Sem Examination, November 2021
IT416: Computer Vision

Time: [90+10] Minutes **Max Marks: 35**

Weightage: 25%

Date: 22/11/2021

Register No. | | | | | | |

Note: Answer ALL questions to the point. Assumptions can be made in the beginning of every answer suitably, if required.

Questions

Q1: **Apply the region splitting on the following image assuming the threshold value be less than or equal to 4.** **[3+2]**

5	6	6	6	7	7	6	6
6	7	6	7	5	5	4	7
6	6	4	4	3	2	5	6
5	4	5	4	2	3	4	6
0	3	2	3	3	2	4	7
0	0	0	0	2	2	5	6
1	1	0	1	0	3	4	4
1	0	1	0	2	3	5	4

Apply the region growing on the following image assuming the threshold value be less than or equal to 4 .

3	6	5	4	2
1	0	7	6	4
3	2	1	4	5
3	4	4	7	3
1	1	2	5	2

Q2: **Apply the contrast stretching technique on 3 bit gray level image of the size 4x4 given below** **[05]**

2	1	2	1
4	5	5	6
3	2	1	4
6	2	1	6

Q3: **Given two histograms (i) and (ii), modify the histogram (i) as given by histogram (ii).** **[05]**

(i)

Grey Level	0	1	2	3	4	5	6	7
No. of Pixels	80	100	90	60	30	20	10	0

(ii)

Grey Level	0	1	2	3	4	5	6	7
No. of Pixels	0	0	0	60	80	100	80	70

Q4: Find the value of f(3) using Linear Image interpolation given that f(1) = 10 and f(6) = 10. **[05]**

Q5: Consider the following image, what will be the new value of the pixel (2,2), if smoothing is done using a 3x3 neighborhood . **[05]**

0	1	0	2	7
2	7	7	4	0
5	6	4	3	3
1	1	0	7	5
5	4	2	2	5

1]Mean filter

2]Median Filter

3]Weighted average filter.

4]Min filter

5]Max filter

Q6: Use K-means clustering algorithm to divide the following data points into two clusters. **[10]**

X1	1	2	2	3	4	5
X2	1	1	3	2	3	5
