(b) What do you mean by image morphology ? Differentiate between opening and closing. (CO4)

(c) Explain Spatial and Temporal redundancy in detail with an example. (CO4)

5. (a) What do you mean by Pattern Matching ? Explain the commonly used pattern arrangements. (CO5)

(b) What do you mean by Image Segmentation ? Explain the different approaches for image segmentation. (CO5)

(c) Explain the regional description in detail. (CO5)

H Roll No. .....

TMC–304

M. C. A. (THIRD SEMESTER) END SEMESTER EXAMINATION, 2022

IMAGE PROCESSING AND COMPUTER VISION

Time :Three Hours

Maximum Marks : 100

Note : (i) All questions are compulsory.

(ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.

(iii) Total marks in each main question are **twenty.**

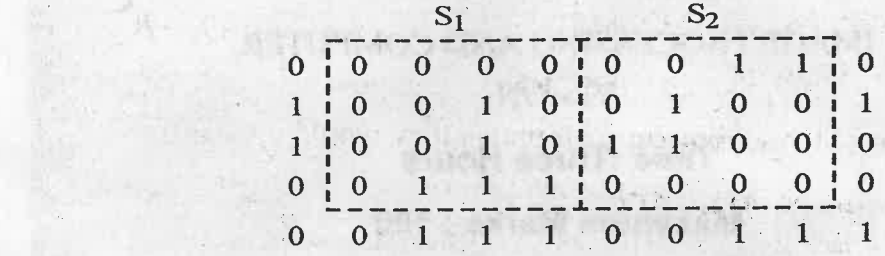
(iv) Each sub-question carries 10 marks.

1. (a) Explain in detail the various steps in Digital image processing with a neat diagram. (CO1)

P. T. O.

(b) What do you mean by adjacency ? Differentiate between 4, 8 and M adjacency. (CO1)

(c) Consider the two image subsets S_1 and S_2 shown in the following figure. For $V = \{1\}$, determine whether these two subsets are (i) 4-adjacent, (ii) 8-adjacent, or (iii) *m*-adjacent. (CO1)



2. (a) Draw the histogram of the image given below. Is it required to equivalize this histogram ? (CO2)

253	255	255	255	255
255	255	255	255	253
253	253	255	255	255
253	255	253	255	255
253	255	255	255	255

(b) Explain Spatial filtering in detail. What are the non-linear filters used for Image Enhancement. (CO2)

(c) Differentiate between Correlation and Convolution with an example. (CO2)

3. (a) Explain Gaussian, Gamma, Salt and Pepper and, Rayleigh noise emphasizing on its probability distribution function. (CO3)

(b) Sketch the RGB components of the following colours as they would appear on a monochrome monitor. (CO3)

Black	Red	Yellow	Green	Cyan	Blue	Magenta	White	Gray

(c) Explain RGB colour model with a neat diagram. (CO3)

4. (a) Compress the sybmols given below using Huffman Coding. (CO4)

S1	0.25
S2	0.21
S3	0.15
S4	0.14
S5	0.0625
S6	0.0625