

B. TECH. (COMPUTER SCIENCE & BUSINESS SYSTEMS) (CBCS - 2018 COURSE)
Computer Science & Business Systems

B.Tech. (CSBS) Sem - VIII :SUMMER : 2023

SUBJECT : IMAGE PROCESSING & PATTERN RECOGNITION

Day : Friday

Time : 02:30 PM-05:30 PM

Date : 02-06-2023

S-20497-2023

Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Use of non-programmable calculator is **allowed**.
- 4) Assume suitable data **WHEREVER** necessary.

- Q.1 Explain histogram equalization and increase the intensity of following image by (10)
20.

4	3	5	5
7	6	8	1
3	1	2	2
4	6	5	7

OR

- Q.1 What are the components in Digital Image Processing? Explain in detail. (10)
- Q.2 Apply Low Pass Filter on following image. (10)

10	30	50
10	140	50
10	30	50

OR

- Q.2 Explain the Median, Mode, Max, Min filter with an example. (10)
- Q.3 Explain LZW coding with an example. (10)
- Q.3 Find out the number of bits required for Huffman coding and without Huffman coding of following data. (10)

Letters	a1	a2	a3	a4	a5
Probability	0.2	0.3	0.2	0.2	0.1

- Q.4 Write difference between Erosion and Dilation of an image. (10)
- OR
- Q.4 Explain Hit or Miss Transformation with an example. (10)
- Q.5 What are the challenges in Bayesian Decision Theory? (10)
- OR
- Q.5 With the help of suitable diagram, explain classifiers and functional structure of general statistical pattern classifier. (10)
- Q.6 Explain in detail Gaussian mixture models. (10)
- OR
- Q.6 What is HMM? Explain in detail. (10)
