

Con. 8862-13.

(REVISED COURSE)
 (3 Hours)

GS-5590

[Total Marks : 100

- N.B. :** (1) Question No. 1 is compulsory.
 (2) Attempt any **four** questions out of remaining **six** questions.
 (3) **Figures** to the **right** indicate **full** marks.



1. (a) Explain the need of a Log operator. 5
 (b) Run length encoding is a loss-less compression technique, explain. 5
 (c) Explain image file formats 5
 (d) Explain connectivity of pixels. 5
2. (a) Explain in detail Homomorphic filter. 10
 (b) Describe the features of a compression model with a neat block diagram. 10
3. (a) What would be the effect on the histogram if higher order bit planes are set to zero. 10
 Explain with given image.

150	200	150	175	100
225	75	50	200	125
250	50	75	75	25
75	25	250	50	175
100	225	150	175	250

- (b) Explain edge linking in detail. 10
4. (a) Explain in detail enhancement techniques in spatial domain – 10
 (i) Image Negative
 (ii) Bit plane slicing
 (iii) Contrast stretching.
- (b) Compare the basic frequency domain filters – 10
 (i) Ideal low pass
 (ii) Butterworth low pass
 (iii) Gaussian low pass.
5. (a) Explain the following operations in detail – 10
 (i) Erosion
 (ii) Dialation
 (iii) Opening
 (iv) Closing.
- (b) Explain the following edge extraction operators – 10
 (i) Sobel
 (ii) Prewitt
 (iii) Roberts
 (iv) Laplacian

[TURN OVER

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6. (a) Generate Huffman code for the following table in which eight symbols with **10** corresponding probabilities are given below –

Symbol	q ₀	q ₁	q ₂	q ₃	q ₄	q ₅	q ₆	q ₇
Probability	0.05	0.08	0.022	0.06	0.18	0.13	0.07	0.48

- (b) Explain the following – **10**
- (i) Chain codes
 - (ii) Region filling.
7. (a) Differentiate between Convolution and Co-relation. **5**
- (b) Differentiate between Lossy compression and Lossless compression **5**
- (c) Write short note on Feature extraction **5**
- (d) Explain iso preference curve in detail. **5**
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