(2 ½ Hours) [Total Marks: 60

N.B: (1) **All questions are compulsory.**
(2) Figures to the **right** indicate **full marks.**
(3) **Assume additional data if necessary** but state the same clearly.
(4) Use of **calculators** and **statistical tables** are **allowed.**

Q.1	Attempt **any two** of the following	(12)
(a)	Briefly describe the fundamental steps in image processing.	6
(b)	What is meant by brightness adaptation and discrimination? Explain.	6
(c)	Explain the different types of connectivity of pixels with suitable example.	6
(d)	Write a note on Walsh transform and its application in image processing.	6
Q.2	Attempt **any two** of the following	(12)
(a)	Write a note on image enhancement using spatial filters.	6
(b)	What is histogram of an image? Compare between histogram equalization and histogram matching.	6
(c)	Write a note on weighted average filters. Give example.	6
(d)	What are high boost filters? How are they used? Explain.	6
Q.3	Attempt **any two** of the following	(12)
(a)	Write a note on Image Pyramids.	6
(b)	What is dilation and erosion of an image? State its applications.	6
(c)	Explain fundamental characteristics of Hit-or-Miss transformation.	6
(d)	Explain the morphological image operations on a binary image.	6
Q.4	Attempt **any two** of the following	(12)
(a)	Compare and contrast between inter-pixel redundancy, coding redundancy and psycho-visual redundancy.	6
(b)	Explain Huffman Coding with suitable example.	6
(c)	What is edge linking? Highlight its significance in image segmentation.	6
(d)	Write a note on i. Fidelity Criteria ii. Boundary Descriptors	6
Q.5	Attempt **any two** of the following	(12)
(a)	Explain the JPEG compression with suitable block diagram.	6
(b)	Write a note on discrete wavelet transforms in one dimensions.	6
(c)	What are sharpening filters? Give examples. Explain any one in detail.	6
(d)	Explain image sampling and quantitation.	6

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