Duration: 3hrs [Max Marks:80]

N.B.: (1) **Question No 1 is Compulsory**.
 (2) **Attempt any three questions out of the remaining five.**
 (3) All questions carry equal marks.
 (4) Assume suitable data, if required and state it clearly.

1	Attempt any **Four.**	[20]
a	Draw the basic block diagram of image processing system and explain the function of each block.	[5]
b	Explain BMP and TIFF image file formats.	[5]
c	Compare between lossless and lossy image compression techniques.	[5]
d	State the need of image segmentation and list the features of region-based image segmentation.	[5]
e	Explain high boost filtering technique and state its advantages.	[5]
2 a	What are the different types of coding redundancies? How it can be used in image compression?	[10]
b	Explain the working of machine vision system for quality grading of painted Slates.	[10]
3 a	Explain edge linking using Hough transform with suitable example.	[10]
b	State and explain the following four basic morphological operations:	[10]

1) Dilation
2) Erosion
3) Opening
4) Closing,

4 a	Explain in detail about the stemware inspection machine vision System,	[10]
b	For the following image histogram data, perform histogram equalization and plot both original and modified histogram.	[10]

Grey Level (k)	0	1	2	3	4	5	6	7
Number of Pixels (n_k)	70	100	40	60	0	80	10	40

5 a	Explain the glass thickness measurement using morphology technique,	[10]
b	How are the chain codes used in image segmentation? Describe with suitable example.	[10]
6 a	Explain lossless Huffman coding for image compression with example.	[10]
b	Explain 2D DFT of an image with suitable example.	[10]

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