07|06|17

Sem VIII  I·T (CBdS)

Q.P. Code : 814602

(3 Hours )  | Total Marks : 80

N.B. :  (1) Question No **1** is compulsory.
(2) **Attempt** any **three** from remaining.
(3) ASSUME suitable data, if required.

1.  Justify/contradict with reason. **(Any four)** :-  20
a)  Lossy compression cannot be used for executable files.
b)  Every image has unique histogram.
c)  Unit step sequence is power signal.
d)  Extreme contrast stretching is thresholding.
e)  Laplacian is not a good edge detector.

2.  a)  Explain Homomorphic filtering ?  10
b)  Explain fundamental steps in image processing.  10

3.  a)  Explain in detail image enhancement in spatial domain.  10
b)  Explain the following frequency domain filters.  10
(i) Ideal Low Pass filter. (ii) Butterworth High Pass filter.

4.  a)  Explain in detail region based segmentation.  10
b)  Perform Histogram Equalization for the data given below and draw the  10
Histogram for input and output image

| Gray level | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Frequency | 123 | 78 | 281 | 417 | 639 | 1054 | 816 | 688 |

5.  a)  List and explain applications of IP.  10
b)  What is Morphology? Explain basic morphological functions in detail.  10

6.  a)  Give Huffman code for the following symbols  10

| Symbol | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| Probability : | 0.05 | 0.008 | 0.002 | 0.06 | 0.18 | 0.13 | 0.07 | 0.48 |

b)  What is hough transform? Explain in detail.  10

---