B.E. (B.M.) (Sem VII) (Rev) Dec. 07
Principles of Image Processing.

[illegible]-07. **[REVISED COURSE]** 10/12/07 **CD–7317**

(3 Hours) **[Total Marks : 100**

Question No. **1** is **compulsory**.
Attempt any **four** questions out of remaining **six** questions.
Figures to the **right** indicate **full** marks.

[illegible]t any **five** :– **20**

a) Explain sampling and quantization with respect to images. How would one avoid aliasing ?
b) Explain the manifestation of ringing effects in an ideal low pass filter.
c) Explain Digital Subtraction Angiography.
d) When would one use a median filter ?
e) Explain the process of Half-Toning.
f) What is a Point Spread Function ?

Explain the following point processing techniques using a pseudo image :– **10**
(i) contrast stretching
(ii) bit-plane slicing.

Give the frequency table, perform histogram equalisation – **10**

Gray level	0	1	2	3	4	5	6	7
No. of pixels	73	128	260	440	637	1048	800	710

Derive the Separability and the Shifting property of the DFT. Where are they used ? **10**

Compute the DFT of the given image – **10**

0	1	2	1
1	2	3	2
2	3	4	3
1	2	3	2

Explain the process of filtering in the frequency domain. **10**

Explain the process of homomorphic filtering. **10**

Explain different image redundancies along with a compression technique to reduce them. **10**

Explain opening and closing operations with suitable examples. **10**

Explain Huffman coding with a suitable example. **10**

Explain the following Edge extraction operators with their advantages – **10**
[illegible]) Sobel
Laplacian.

[illegible]notes (any **four**) :– **20**
Connectivity of pixels
[illegible]ation and Erosion
Region Growing
[illegible]gnatures
Hadamard Transform.