

Code :R5321904

R5

III B.Tech II Semester(R05) Supplementary Examinations, April/May 2011
DIGITAL IMAGE PROCESSING
(Electronics & Computer Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) Discuss in detail sampling and quantization of Images.
(b) Define spatial resolution? What is its effect on Image processing.
2. State and prove following properties of 2D-DFT
 - (a) Rotation
 - (b) Distributivity.
3. Discuss the limiting effect of repeatedly applying a 3X3 low pass spatial filter to a digital Image. You may ignore the border effects.
4. Give the expression for 2-D Butterworth High pass filter transfer function and sketch it. Explain its usefulness in Image enhancement.
5. Derive the CMY intensity mapping function of $s_i = k r_i + (1-k) I$, $I=1,2,3$ from its RGB counterpart in $s_i = k r_i$, $I=1,2,3$.
6. Explain about Adaptive median filter.
7. Prove that the average value of any image convolved with the equation $\nabla^2 h = ((r^2 - \sigma^2)/\sigma^4) \exp(-r^2/2\sigma^2)$ is zero.
8. (a) What is information channel? Explain.
(b) Draw and Explain about a simple information system.
