Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(CSE) (2011 Onwards Elective-III) (Sem.–7,8)

DIGITAL IMAGE PROCESSING

Subject Code : BTCS-915

Paper ID : [A2997]

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Write briefly :

a. What is sampling and quantization?

b. When and where will you use non-uniform sampling and quantization?

c. What do you mean by false contouring?

d. What is Fourier transform? What is its role in image processing?

e. List out the important properties of two-dimensional Fourier transform.

f. What is the advantage of using homomorphic filtering?

g. Define compression ratio.

h. What are the types of redundancies normally available in an image?

i. What is the requirement of edge linking?

j. What is difference between image enhancement and image restoration?

SECTION-B

2. Describe in brief various lossy compression techniques.
3. Explain different edge detection operators and compare them.
4. Explain image restoration technique using inverse filtering.
5. Describe histogram equalization technique for image enhancement.
6. What are color models? Describe in brief RGB and HSI color models.

SECTION-C

7. With the help of block diagram, describe in detail fundamental steps in image processing.
8. Explain in detail various spatial domain filtering approaches for image enhancement.
9. Write short notes on :
   a. JPEG Compression
   b. Noise filters