

Total No. of Questions : 10]

SEAT No. :

P3535

[Total No. of Pages : 2

[4959] - 1206

B.E. (Instrumentation & Control)

**A : Digital Image Processing
(2012 Pattern)**

Time : 2.30 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Assume Suitable data if necessary

- Q1)** a) Explain statistical parameters mean, standard deviation, variance, SNR [6]
b) Explain short time fourier transform. [4]

OR

- Q2)** a) With reference to relation between pixels explain [6]
i) 4 connectivity
ii) 8 connectivity
iii) mixed connectivity
b) Explain RGB image models [4]

- Q3)** a) What is Histogram? Explain with example [4]
b) Differentiate between median & average smoothing? [6]

OR

- Q4)** a) Perform the histogram equalization of the following image.

Gray level	0	1	2	3	4	5	6	7
No. of pixel	44	40	88	105	96	141	197	313

Comment on the nature of the input image and the equalized image. [6]

- b) Explain sharpening filters. [4]

P.T.O.

- Q5)** a) Explain different methods for segmentation. Explain one in detail.[10]
b) Explain pattern and pattern classes with examples [8]

OR

- Q6)** a) Explain various regional descriptors. [10]
b) Explain 4 point and 8 point chain code with example. [8]

- Q7)** a) Explain huffman coding for image compression [8]
b) Explain JPEG, JPEG-2000 standards. [8]

OR

- Q8)** a) Explain LZW and arithmetic coding. [8]
b) Explain transform based image compression. [8]

- Q9)** a) Explain DIP application in Biometrics. [8]
b) Explain DIP application in Agricultural. [8]

OR

- Q10)** Short notes on (any two) [16]
a) Biomedical application in DIP
b) Explain DIP application in military and space
c) Explain how to detect face recognition using DIP

