

1059  
B.E. (Electronics and Communication Engineering)  
Eighth Semester  
Elective – II & III  
EC-808: Digital Image Processing

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 (Section-A) which is compulsory and selecting two questions each from Section B-C.

x-x-x

Section -A

- Q 1(a) What is the effect of low quantization and less sampling rate on images?  
(b) List the different image storage formats.  
(c) List two advantages of processing images in frequency domain.  
(d) List the different color models used.  
(e) Why do we have multiple image transforms?  
(f) What is inter-pixel redundancy?  
(g) What is error free compression?  
(h) List any two image compression standards.  
(i) What are channel encoders?  
(j) What are fidelity criteria?

Section -B

- Q2 (a) What will be the size of an image acquired using a CCTV camera with resolution 2 megapixel and 256 quantization levels in each of RGB plane. What would happen if we change the color model of image? (7)  
(b) What is simultaneous contrast? (3)  
Q3 (a) What is non uniform quantization? How can it help in reducing storage requirements? Do we use different quantization levels in intensity based color models (5)  
(b) What are perspective transformations? (5)  
Q 4 (a) What is histogram equalization? Explain the process. (5)  
(b) What are sharpening filters? Explain the use of unsharp masking. (5)

Section -C

- Q5 Explain the use of different transforms on images? Describe the properties of Hadamard transforms in detail. (10)  
Q6 (a) Explain the Shannon's theorem. How can you measure the information contained in an image? (5)  
(b) What is bit plane encoding? Which is the least significant bit? What is the use of bit plane encoding? (5)  
Q7 (a) Describe the process of lossless predictive encoding? What is the role of quality of predictor? (5)  
(b) Write a short note on different image compression standards. (5)

x-x-x