Ex/PRN/PC/B/T/313/2024

B.E. PRINTING ENGINEERING THIRD YEAR FIRST SEMESTER - 2024

DIGITAL IMAGING Time: Three hours Full Marks: 100

Answer any Five Questions

1. a) Why proofs are made. 6
   b) Write on imagesetter calibration. 6
   c) Compare Bayer filter and Bayer matrix. 2
   d) Write on the ideal requirements of a proofing system. 6
2. a) Generate 8 by 8 order dither matrix from the following matrix D_2 6
   D_2= 3 1
   0 2
   b) Convert the following image matrix into a halftone using above generated 4 by 4 order dither matrix. 4

80	85	120	65	86
170	210	160	78	9
20	100	75	125	147
72	50	160	130	230

   c) Explain rosette patterns. 4
   d) Write the various methods of CCD arrangement technique. 4
   e) Distinguish between Hell and Royal Zenith drum scanner. 2
3. a) Elaborate the proofs and approval cycle with necessary diagram. 6
   b) Describe PMT with necessary diagram. 4
   c) Write the advantages and disadvantages of moiré. 5
   d) Describe the dot diffusion method. 5
4. a) Explain the role of interpolation in imaging. 8
   b) Why sometimes softproof and hardproof does not match? 4
   c) Compare PMT and CCD. 4
   d) Write the role of halftone dot shape. 4
5. a) Write the required relation to compute the scan resolution of line art, grayscale and color images. 6
   b) Describe one method of photomechanical and one method of electrostatic proofing system. 5
   c) What are the various types of proofing systems? 5
   d) Describe Floyd Steinberg method of error diffusion. 4

6. a) Convert the following image matrix into halftone using Floyd and Steinberg method of error diffusion. 8

0.7	0.6	0.5
0.5	0.9	0.5

b) Briefly describe the various kinds of inkjet systems. 6

c) Distinguish between three pass and single pass scanning. 4

d) Write the role of screen ruling in moiré removal 2

7. a) Describe various types of imagesetter. 9

b) Write the benefits of stochastic screening. 6

c) Explain monotype lasercomp with necessary diagram. 5

8. a) Write the role of polarization filters in densitometry. 4

b) Compare CCD and CMOS sensors. 4

c) Write the factors that determine the file size of a digital image. 4

d) Compare clustered dot dither and dispersed dot dither. 4

e) Explain some drawbacks of pixel grid patterning. 4