

B.E. PRINTING ENGINEERING THIRD YEAR FIRST SEMESTER SUPPLEMENTARY

EXAM – 2024

DIGITAL IMAGING

Time: Three hours

Full Marks: 100

Answer any Five Questions

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

0.5	0.7	0.5
0.5	0.8	0.5
- b) Briefly describe the various kinds of inkjet systems. 6
- c) Describe Floyd Steinberg method of error diffusion. 4
- d) Write the role of screen ruling in moiré removal 2
2. a) Elaborate the proofs and approval cycle with necessary diagram. 6
- b) Write the role of polarization filters in densitometry. 4
- c) Write the advantages and disadvantages of moiré. 5
- d) Describe the dot diffusion method. 5
3. a) Why proofs are made. 6
- b) Write the benefits of stochastic screening. 6
- c) Compare Bayer filter and Bayer matrix. 2
- d) Write on the ideal requirements of a proofing system. 6
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 various methods of CCD arrangement technique. 4

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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) Explain rosette patterns. 4
6.
 - a) Describe various types of imagesetter. 9
 - b) Write on imagesetter calibration. 6
 - c) Explain monotype lasercomp with necessary diagram. 5
7.
 - a) Generate 8 by 8 order dither matrix from the following matrix D_2 6
 $D_2 = \begin{bmatrix} 3 & 1 \\ 0 & 2 \end{bmatrix}$
 - b) Convert the following image matrix into a halftone using above generated 4 by 4 order dither matrix. 4

130	54	124	70	88
170	200	160	78	9
10	100	75	120	145
70	77	190	125	232
 - c) Explain some drawbacks of pixel grid patterning. 4
 - d) Write the role of halftone dot shape. 4
 - e) Compare CAD and DAD based laser printers. 2
8.
 - a) Distinguish between Hell and Royal Zenith drum scanner. 3
 - b) Compare CCD and CMOS sensors. 2
 - c) Write the factors that determine the file size of a digital image. 3
 - d) Distinguish between three pass and single pass scanning. 4
 - e) Compare clustered dot dither and dispersed dot dither. 4
 - f) Describe PMT with necessary diagram. 4