BACHELOR OF PRINTING ENGINEERING, EXAMINATION, 2018

3rd Year, 2nd Semester

DIGITAL IMAGING Time: Three hours Full Marks: 100

Answer any Five Questions

1. a) Generate 8 by 8 order dither matrix from the following matrix D_2 6

$D_2 = \begin{matrix} 3 & 1 \\ 0 & 2 \end{matrix}$

b) Convert the following image matrix into a halftone using above generated 4 by 4 order dither matrix. 4

110	48	120	65	87
180	220	160	78	6
10	100	75	120	145
60	77	170	125	230

c) Describe PMT with necessary diagram. 4

d) Write the role of halftone dot shape. 4

e) Distinguish between Hell and Royal Zenith drum scanner. 2

2. a) Describe various types of imagesetter. 9

b) Write on imagesetter calibration. 6

c) Explain monotype lasercomp with necessary diagram. 5

3. 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

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

5. 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) Explain rosette patterns. 4

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

6. 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

7. 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

8. a) Compare CAD and DAD based laser printers. 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) Explain some drawbacks of pixel grid patterning. 4