

**B.E. PRINTING ENGINEERING SECOND YEAR SECOND SEMESTER EXAM 2023**

**DIGITAL PRINTING**

**Full Marks: 100**

**Time: 3Hr.**

**Answer questions under each CO separately and clearly in one place**

**CO1: Discuss digital printing technologies (K2)**

**1. Answer any 4 questions (4 x 10)**

- a) Discuss briefly the overall process of electrophotography. 10
- b) Discuss any three development process of electrophotography. 10
- c) Discuss the role of piezo crystals in inkjet printing process. Discuss the principle of bubble jet. 6 + 4
- d) Discuss vibration type inkjet printing process. Discuss the formation of satellite drops. 6 + 4
- e) Discuss the thermal transfer printing process. Discuss the principle and some applications of hybrid printing process. 6 + 4

**CO2: Analyze digital prepress. (K4)**

**2. Answer any 3 questions (3 x 10)**

- a) Analyze the result of halftoning of the following image using any standard dither matrix of your choice. Compare the result with the result of fixed thresholding based halftoning. 8 + 2

138	240	66
170	210	160
53	200	250

- b) Analyze the result of halftoning of the above image using error-diffusion technique. 10
- c) Analyze the function of PCL and JDF. 6 + 4

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- d) Analyze the difference between raster and vector images. Analyze the function of RIP. Analyze the function of pagination software. 4 + 3 + 3

**CO3: Describe digital proofing. (K2)**

**3. Answer any 2 questions (2 x 10)**

- a) Describe the role of GRACoL in proofing and press calibration. 10
- b) Describe briefly the role of SWOP. Describe the working principle of spectrophotometer. 4 + 6
- c) Describe the working principle of densitometer. 10

**CO4: Evaluate varieties of application (K6)**

**4. Answer any 1 question (1 x 10)**

- a) A publisher wants to print 100 pieces of a magazine where in each piece the individual subscriber's name and address will be printed. Evaluate this situation and state the possible process steps to meet this requirement with justification. 10
- b) There are many small business houses in USA which require printed business materials like leaflet, pamphlet, brochure, visiting cards, invitation cards, diaries and so on throughout the year. Evaluate the process implementation which can be used for a press in India to get such orders from abroad. 10