

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)

Answer any 4 questions (4 x 10)

1. Discuss the charging process of electrophotography. Discuss how charging process can cause the over and under-development in print copy. 8 + 2
 2. Discuss vibration type DOD inkjet principle. Discuss briefly how this is different from deflection type DOD inkjet. 8 + 2
 3. Discuss impression cylinder development process of electrophotography. Discuss how the requirement of development electrode is served in this process. 8 + 2
 4. Discuss direct thermal printing process. Discuss how indirect thermal printing process can address the limitations of direct thermal printing process. 6 + 4
 5. Discuss the fusing and cleaning process of xerography. Discuss briefly about satellite drops in inkjet printing. 6 + 4
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CO2: Analyze digital prepress. (K4)

Answer any 3 questions (3 x 10)

6. Consider the following image and analyze the result of halftoning using any point processing algorithm. Analyze how point processing algorithms are conceptually different from neighborhood algorithms. 8 + 2

138	240	66
170	210	160
53	200	250

Turn Over

7. Analyze the working principle of drum scanner with required diagram(s). Analyze the requirement of normalization in halftoning algorithms. 8 + 2
8. Analyze the function of postscript. Analyze the importance of PDF in prepress. 5 + 5
9. Analyze the advantages, disadvantages and response characteristics of CCD detectors. Analyze the need of vector images. 7 + 3

CO3: Describe digital proofing. (K2)**Answer any 2 questions (2 x 10)**

10. Describe GRACoL specification briefly. 10
11. Describe the working principle of any prepress instrument which can be used to measure printed color. 10
12. Describe how the print quality can be measure using psychovisual test. 10

CO4: Evaluate varieties of application (K6)**Answer any 1 question (1 x 10)**

13. Evaluate **any one** of the following requirements and suggest the possible digital printing solution with proper justifications. 10

A renowned car brand wants to print 50 copies of very expensive diaries where the customer name, address and other details will be printed.

OR

A press situated in Kolkata, India want to scale-up the business in terms of getting international orders online where the clients can get live update about the job status.

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