

Bachelor of Printing Engineering Supplementary Examination, 2024
(2nd Year-1st Semester)
Paper Technology

Full Marks: 100

Group - I

Answer the following questions. (50)

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| (1) (a) Differentiate between (Any 3): | 4 × 3 |
| (i) Hot acid and Cold acid sulphite pulping | |
| (ii) Hardwood and Softwood | |
| (iii) Sulphate and Sulphite pulping | |
| (iv) TMP and RMP | |
| (b) Why oxygen and chlorine are used in the early stages of bleaching? | 3 |
| | |
| (2) (a) What happen if initial heating rate is high in hot acid process of digestion? | 1 |
| (b) What are the advantages of using synthetic fiber? | 2 |
| (c) Write down the brightness value of unbleached and bleached mechanical pulp. | 1 |
| (d) Name one external size used for photographic papers? | 1 |
| (e) Give one example of reductive bleaching agent. | 1 |
| (f) Write down the function of antichlor agent with one example. | 2 |
| (g) What will happen if cooking temperature is increased for constant H-factor? | 2 |
| (h) What is reverse sizing? When is this reverse sizing done? | 2 |
| (i) If the Newsprint is kept for long time it becomes yellowish in color - Why? | 2 |
| (j) Write down the function of multiple effect evaporators in chemical recovery of sulphate pulping. | 2 |
| (k) 'Digester has an acid preventing lining inside'- Why? | 2 |
| (l) Which chemicals are used for bleaching mechanical pulp? | 2 |
| | |
| (3) (a) 'With most internal sizing methods (rosin or alkaline), hardwood pulps are much easier to size than softwood pulps'-Explain why? | 3 |
| (b) What is bleachability of pulp? How can it be determined? Why is it necessary to determine? What amount of bleachability is desirable? | 6 |
| (c) What does the large amount of hydrochloric acid formed in chlorination of pulp stage indicate? | 3 |
| (d) Paper produced with cotton fibers is better than those produced by wood fibers-Why? | 3 |

Group - II

Answer the following questions. (25)

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| (4) (a) Why blue dye is added to the pulp? How does it work? | 2 |
| (b) What is internal sizing? How rosin size is prepared and used? | 3 |

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- (5) (a) Describe the wet section of conventional Fourdrinier machine with proper diagram. 6
 (b) Which paper is referred to as wove paper? Why? 2
 (c) Write down the purposes of press section of paper making machine. 2
- (6) (a) Write down the following sheet sizes in inch: Metric Demy 4to, Metric medium octavo, Imperial. 3
 (b) What are the differences between A1, RA1 and SRA1 sizes of paper? Why these three series are there? 4
 (c) Differentiate between MF and SC paper. 3

Group - III

Answer question no. 9 and any two from the rest. (25)

- (7) (a) Write down the effects of fillers on surface smoothness and printing properties of paper? 3
 (b) What are the factors that affect tearing resistance of paper? 3
 (c) Which properties are used to study the aging of paper? 2
 (d) Write down the factors responsible for busting strength of paper. 2
- (8) (a) Paper is generally open or porous on wire side and closed or fine textured on felt side- Why? 3
 (b) What are the factors which affect properties of paper? 3
 (c) What is contrast gloss? How it can be measured? What does it indicate? 4
- (9) (a) What does the ratio of tensile strength in machine direction with cross direction of paper indicate? 1
 (b) What is surface strength index of paper? 1
 (c) Why curl is more pronounced with thin papers than thick paper? 2
 (d) How degree of sizing on paper can be measured? 1
- (10) (a) How oil and grease resistance of paper can be determined? 4
 (b) What are the factors affecting opacity of paper? Write the contrast ratio method of measuring opacity. 6