

Bachelor of Printing Engineering Examination, 2025
(2nd Year-1st Semester)
Paper Technology

Full Marks: 100

Part – A

Answer question no. 3 and any three from the rest. (50)

1. (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 reverse sizing? When is this reverse sizing done? 3
(c) What does the large amount of hydrochloric acid formed in chlorination of pulp stage indicate? 2
(d) What is bleachability of pulp? What amount of bleachability is desirable? 2
2. (a) What are the advantages of P-stage of chemical pulping over P-stage of mechanical pulping? 4
(b) Discuss about the functioning and problems of hydraulic grinder. How the problems can be resolved? 4
(c) If the Newsprint is kept for long time it becomes yellowish in color-Why? 2
3. (a) Write down the name of an internal sizing element used in paper making. 1
(b) Name one external size used for photographic papers? 1
(c) Give one example of chelating agent. 1
(d) Binder for offset printing paper should resist water-why? 1
(e) Paper produced with cotton fibers is better than those produced by wood fibers-Why? 2
(f) Write down the function of multiple effect evaporator in chemical recovery of sulphate pulping. 2
(g) Why offset coated papers contain more binder than flexo or gravure? 2
(h) What are synthetic sizes? Where they are used? 2
(i) What happens if initial heating rate is high in hot acid process of digestion? 2
(j) What is the difference between the approach taken for bleaching mechanical pulp and chemical pulp? 3
(k) What will happen if cooking temperature is increased for constant H-factor? 3
4. (a) Write the difference between hot acid and cold acid sulphite pulping process. 5
(b) Discuss about continuous digester with proper diagram. 5
5. (a) Why oxygen and chlorine are used in the early stages of bleaching? 3
(b) 'The use of chlorine dioxide as a bleaching agent has increased over the past several years'-why? 4
(c) Write down the function of antichlor agent with one example. 3

Group - II

Answer any one questions.(10)

6. (a) Explain the three phases of ink flotation method. 6
(b) Why blue dye is added to the pulp? How does it work? 4
7. (a) What are the characteristics the filler need to have to be used in paper manufacturing? Write down the name of any two inorganic filler. 5
(b) Explain the functioning of rotary drum vacuum washer with proper diagram. 5

[Turn over

Group - III

Answer any one question.(15)

8. (a) Describe the wet section of conventional Fourdrinier machine with proper diagram. 5
 (b) Describe the air knife coater with proper diagram. 4
 (c) Which paper is referred to as wove paper? Why? 2
 (d) Why the top and bottom drying cylinders are not placed exactly one above other? Why? 2
 (e) Where cylinder type paper making machine is preferred? Why? 2
9. (a) Write short notes on picking and pilling problem. 3
 (b) Write the purpose and functioning of (a) Breast roll and (b) Couch roll. 4
 (c) Write down the difference between (i) chalking & matt-rub problem (ii) show-through & strike-through problem. 4
 (d) Describe the supercalendering section with proper diagram. 4

Group - IV

Answer question no. 12 and any one from the rest.(25)

10. (a) Paper is generally open or porous on wire side and closed or fine textured on felt side- Explain? 4
 (b) What are the controlling factors of smoothness of paper? How smoothness can be measured? 3
 (c) Why the density of paper is called apparent density? 3
 (d) What is contrast gloss? How it can be measured? What does it indicate? 5
11. (a) What is pick resistance of paper? Write its measurement procedures. 5
 (b) What is bursting strength? How can it be measured? What are the factors responsible for bursting strength of paper? 5
 (c) What is tensile index? How tensile strength varies in machine and cross direction? Why tensile strength is important to measure? 5
12. (a) What is Critical Wax number? 1
 (b) What is Bulking number? 1
 (c) What are the controlling factors of smoothness? 2
 (d) Why brightness of paper is measured at 457nm wavelength of spectrum? 2
 (e) Which properties are used to study the aging of paper? 2
 (f) Why curl is more pronounced with thin papers than thick paper? 2