

Bachelor of Printing Engineering Supplementary Examination, 2023
(2nd Year-1st Semester)
Paper Technology

Time: Three hours

Full Marks: 100

Group – I**Answer question no. 1 and any one from the rest.**

1. (a) Write down the function of multiple effect evaporator in chemical recovery of sulphate pulping. 2
 (b) What will happen if cooking temperature is increased for constant H-factor? 2
 (c) What is reverse sizing? When is this reverse sizing done? 2
 (d) Uniform thickness is most important in printing papers-Justify. 3
 (e) Why brightness of paper is measured at 457nm of the spectrum? 2
 (f) Name one external size used for photographic papers? 1
 (g) Give one example of reductive bleaching agent. 1
 (h) Which chemicals are used for bleaching mechanical pulp? 2
 (i) Discuss about continuous digester with proper diagram. 5
 (j) How rosin size is prepared? 4
 (k) Write down the purpose of internal sizing in the paper. How is it accomplished? When and how alkaline sizing is done? Write down its advantages. 6

2. (a) What will happen if chlorination is done at PH 4 to 7? Which chlorine species degrades cellulose the most? 5
 (b) Explain the function of disc refiner with proper diagram. 7
 (c) Write down the function of antichlor agent with one example. 3
 (d) Explain the functioning of warrant chain grinder with proper diagram. 3
 (e) Why offset coated papers contain more binder than flexo or gravure? 2

3. (a) Differentiate between: 4 x 4
 (i) Hot acid and Cold acid sulphite pulping
 (ii) Hardwood and Softwood
 (iii) Sulphate and Sulphite pulping
 (iv) TMP and RMP
 (b) Define H-factor? How does it control quality of paper? 4

Group – II**Answer any one question.**

4. (a) What are the effects of beating on the paper? 5
 (b) Describe the air knife coater with proper diagram. 5
 (c) Explain the functioning of rotary drum vacuum washer with proper diagram. 5

5. (a) Discuss in brief the effect of fillers on brightness and strength of paper. 3
 (b) What does the large amount of hydrochloric acid formed in chlorination of pulp stage indicate? 4
 (c) What is bleachability of pulp? What amount of bleachability is desirable? 3
 (d) How degree of sizing on paper can be measured? 2
 (e) Why curl is more pronounced with thin papers than thick paper? 2
 (f) What is surface strength index of paper? 1

[Turn over

Group - III**Answer the following questions. (35)**

6. (a) Describe the wet section of cylinder type paper making machine with proper diagram. 3
 (b) Why the top and bottom drying cylinders are not placed exactly one above other? Why? 2
 (c) Write down the purposes of press section of paper making machine. 2
7. (a) Write down the following sheet sizes in inch: Metric Medium 4to, Metric demy octavo, Imperial. 3
 (b) What are the differences between A1, RA1 and SRA1 sizes of paper? Why these three series are there? 3
 (c) Differentiate between MF and SC paper. 2
8. (a) What is tensile index? How tensile strength varies in machine and cross direction? Why tensile strength is important to measure? 5
 (b) Why curl is more pronounced with thin papers than thick paper? 2
 (c) What is the Breaking length of paper? Define Tensile Index. 3
9. (a) What is pick resistance of paper? How is it measured? 4
 (b) Write down the factors responsible for busting strength of paper. 2
 (c) What is contrast gloss? How it can be measured? What does it indicate? 4