

Bachelor of Printing Engineering Examination, 2019
(2nd Year-1st Semester)
Paper Technology

Time: Three hours

Full Marks: 100

Answer question no. 1 and any four from the rest.

1. (a) Why the top and bottom drying cylinders are not placed exactly one above other? 1
 (b) Paper is generally open or porous on wire side and closed or fine textured on felt side- Explain? 2
 (c) Why curl is more pronounced with thin papers than thick paper? 2
 (d) What is Critical Wax number? 1
 (e) What is Bulking number? 1
 (f) Uniform thickness is most important in printing papers-Justify. 1
 (g) Why the density of paper is called apparent density? 3
 (h) Why brightness of paper is measured at 457nm of the spectrum? 2
 (i) Name one external size used for photographic papers? 3
 (j) Give one example of reductive bleaching agent. 1
 (k) What are the advantages of using synthetic fiber? 1
 3

2. (a) Write down the causes of two sidedness of paper. 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) What happens in scrubber of chemical pulping process? 3
 (e) Why offset coated papers contain more binder than flexo or gravure? 2

3. (a) Define machine and cross direction of paper? How machine and cross direction of paper can be identified? 5
 (b) What are the merits and demerits of the papers produced with mechanically grind pulp? 5
 (c) 'The use of chlorine dioxide as a bleaching agent has increased over the past several years'-why? 5
 (d) Explain the functioning of warrant chain grinder with proper diagram. 5

4. (a) Differentiate between: 4 x 3
 (i) Hot acid and Cold acid sulphite pulping
 (ii) Hardwood and Softwood
 (iii) Sulphate and Sulphite pulping
 (iv) TMP and RMP
 (b) Describe the functions of size press with proper diagram. 5
 (c) How rosin size is prepared? 3

5. (a) Define permanganate number. Why is it necessary to determine? 3
 (b) What are the effects of beating on the paper? 4
 (c) What are the functions of bleaching in paper making? 6
 (d) Write down the brightness value of unbleached and bleached mechanical pulp. 2
 (e) Explain the functioning of rotary drum vacuum washer with proper diagram. 5

6. (a) Define H-factor? How does it control quality of paper? 6
(b) What does the large amount of hydrochloric acid formed in chlorination of pulp stage indicate? 4
(c) What are the characteristics the filler need to have to be used in paper manufacturing?
Write down the name of any two inorganic filler. 6
(d) Where cylinder type paper making machine is preferred? Why? 2
(e) If the Newsprint is kept for long time it becomes yellowish in color - Why? 2
7. (a) Write down the addition, substitution and oxidation reaction of chlorine with lignin in chlorination process of bleaching. 6
(b) Paper produced with cotton fibers is better than those produced by wood fibers - Why? 4
(c) What are the different types of additives added during stock preparation process? Discuss in brief. 5
(d) What is internal bonding strength of paper? How it can be measured? 5
8. (a) Write short notes on: (any three) 5 x 3
(i) Multi knife disc type chipper
(ii) Jordan refiner
(iii) Semichemical pulping
(iv) Hollander beater
(v) Breast roll & Couch Roll
- (b) What are synthetic sizes? Where and why are they used? Give one example. 5