

BACHELOR OF PRINTING ENGINEERING EXAMINATION, 2009

2nd Year-1st Semester (Supplementary)

PAPER TECHNOLOGY

Time : Three hours

Full Marks : 100

Use a separate answer-script for each part.

PART-I

Answer any four questions

1. (a) Discuss with block diagram the Sulphite pulping process.
(b) Compare between Sulphate and Sulphite pulping. $15+5=20$
2. (a) Discuss with block diagram the chemical recovery process of chemical pulping.
(b) What are the factors which influence the digestion of pulp in Sulphate pulping process? $15+5=20$
3. (a) What are the purposes of beating the pulp?
(b) Discuss with neat sketch the working principle of Hollander beater.
(c) Paper manufactured with beaten pulp is dimensionally less stable than those produced with unbeaten pulp. Why? $5+13+2=20$
4. (a) What are the properties the pigments should have to be used as filler?
(b) What are the materials used as fillers? Discuss in brief on any two of them. $8+(3+9)=20$
5. (a) What are the merits and demerits of the paper produced with mechanical pulp?
(b) What are the properties the cellulose and hemi-cellulose have for which they are used as raw materials in the manufacturing of the paper?
(c) What are the effects of the filler on the brightness and strength properties of the paper? $6+8+6=20$
6. (a) Discuss with block diagram the bleaching process of the pulp. $12+2+2+2+2=20$
(b) In sulphite pulping, hemi-cellulose is separated from pulp during digestion. Why?
(c) The main objective of chemical pulping is to remove lignin from pulp. Why?
(d) If the newsprint is kept for long time, it becomes yellowish in colour. Why?
(e) It is found that if the newsprint is kept for long time, it becomes brittle in nature. Why?

Part-II

Answer any two questions. (Each containing 10marks)

7. (a) What are the factors that affect tearing resistance of paper? 2
(b) How water resistance of paper can be measured? 2
(c) Why good formation is essential for writing and printing papers? 2
(d) What are the causes of dimensional instability of paper? Write down the operating factors of dimensional instability? 2+2=4
8. (a) Define machine and cross direction of paper? How machine and cross direction of paper can be identified? 4
(b) Write down the causes of two sidedness of paper. 3
(c) What are the factors that affect properties of paper? 3
9. (a) What are the controlling factors for smoothness of paper? 2
(b) What is internal bonding strength of paper? How it can be measured? 4
(c) What are the properties of paper that are tested online? 4
10. (a) Why the density of paper is called apparent density? 2
(b) How brightness of paper can be measured? 3
(c) Why curl is more pronounced with thin papers than thick paper? 2
(d) Paper is generally open or porous on wire side and closed or fine textured on felt side-explain? 3
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