

16.2.2009

Puu-21.4000 MECHANICAL PULPING, EXAM 17.2.2009 (4 op)

ATTENTION! If you don't return the question paper, please mark the following information in your answering paper!

Student name

Other information

Student number: 11111A

Have you done Literature work:

no  yes 1963 year

Questions:

1. a) A given grinder room consists of several grinders. What kinds of objective can be set for control of this kind of grinder room. Give reasons for your choice. How would you set the objectives in the order of priority? How would you calculate the objective quantities starting from single grinder values?

b) A given TMP line has two stages. What kinds of objective can be set for control of this kind of a process. Give reasons for your choice. How would you set the objectives in order of priority? (5 p.)

a) *Kyseessä on usean hiomakoneen muodostama hiomo. Minkälaisia tavoitteita voitaisiin asettaa tällaisen hiomon ohjaukselle? perustele valintasi. Miten priorisoisit tavoitteet? Miten laskisit tavoitearvot lähtien yksittäisen hiomakoneiden arvoista?*

b) *Kyseessä on kaksivaiheinen kuumahiertämö. Minkälaisia tavoitteita voitaisiin asettaa tällaisen prosessin ohjaukselle? Perustele valintasi. Miten priorisoisit tavoitteet?* (5 p.)

2. Post-refining of mechanical pulp. Objectives? Practical application?

*Mekaanisen massan jälkijauhatus. Tavoitteet? Käytännön sovellukset?* (5 p.)

3. Bleaching of mechanical pulp. Explain the main bleaching methods and mechanisms, what are the operating conditions in these methods and their effects? Technical applications of the bleaching processes.

*Mekaanisen massan valkaisu. Selosta päävalkaisumenetelmät ja -mekanismit. Mitkä ovat menetelmissä käytetyt olosuhteet ja niiden vaikutus? Tekniset toteutusratkaisut* (5 p.)

4. Your task is to determine (measure) the reject rate (ratio) for a screen. The screen is located in the process so that it is impossible to measure the flows accurately enough. How would you perform this task? Show also the equation(s) on which your determination will be based.