

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Explain the principle of centri-cleaner? Discuss the different variables affecting the efficiency of a centri-cleaner in detail?
- Q.24 Explain the setup and procedure of continuous digester washing operation with the help of a neat diagram?
- Q.25 Describe the process of pulp bleaching using ozone with the help of neat diagram?

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**3rd Sem / Branch : Chemical (Pulp & Paper)
Sub.: Pulp Washing & Bleaching**

Time : 3Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Which of the following sequence of pulp washing is usually used in the industry?
- Multistage counter current
 - Multistage co-current
 - Multistage cross-current
 - Single stage cross-current
- Q.2 Bleaching reactions of chemical pulps are equivalent to what?
- Reduction reactions
 - Oxidation reactions
 - Redox reactions
 - None of the above
- Q.3 What is chemical formula of chlorine dioxide?
- ClO2
 - ClO
 - Cl2O
 - Cl2O2

Q.4 Which of the following factors govern the selection of screening equipment?

- a) Temperature
- b) Type of fiber
- c) Pressure
- d) None of the above

Q.5 What is full form of OXE?

- a) Oxidizing Element
- b) Oxidizing Electron
- c) Oxidizing Equivalent
- d) Oxidizing Electrovalent

Q.6 What is value of displacement ratio for a perfect displacement process?

- a) 0
- b) 0.5
- c) 1
- d) 1.5

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 What is purpose of washing step in pulp bleaching?

Q.8 What is principle of multistage brown stock washer?

Q.9 Define the delignification?

Q.10 What is dispersing?

Q.11 Write the name of a bleaching agent used for high consistency bleaching?

Q.12 Define the term displacement rate used in pulp washing?

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Explain the concept of pulp brightness in brief?

Q.14 What is the importance of dilution of pulp?

Q.15 Explain the preparation calcium hypochlorite in brief?

Q.16 What is the importance of washing operation in paper industry?

Q.17 Explain the alkaline extraction used in the bleaching process?

Q.18 What is soda loss? Why it is to be reduced?

Q.19 Discuss working of a pressure diffuser in brief?

Q.20 What is the brightness reversion? Discuss its importance?

Q.21 Define and discuss the drum speed in context of pulp washing operation?

Q.22 What is total chlorine free bleaching? Discuss its significance?