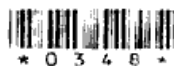


B.Tech. Seventh Semester (Food, Pulp & Paper, Oil & Paint & Petro Technology) (CGS)
11069 : Special - V : Pulp & Paper Technology - V : 7 PT 05

P. Pages : 3

Time : Three Hours



AU - 2953

Max. Marks : 80

- Notes :
1. Due credit will be given to neatness and adequate dimensions.
 2. Assume suitable data wherever necessary.
 3. Diagrams and chemical equations should be given wherever necessary.
 4. Illustrate your answer necessary with the help of neat sketches.
 5. Use of slide rule logarithmic table, Steam table, Mollier's Chart, Drawing instrument, Thermodynamic table for moist air, Psychrometric Chart and Refrigeration charts is permitted.
 6. Discuss the reaction, mechanism wherever necessary.

SECTION - A

1. a) What do you understand by rich and lean white water ? From where these two grades of white water are generated ? 4
b) What role does deculator play in the paper machine ? Explain its working in brief. 4
c) With the help of a neat sketch explain the working of bird save all. 6

OR

2. a) With the help of a neat sketch explain the working of "vortrap" type of centricleaners. 8
b) What do you understand by "Broke" in paper machine ? How do you further process the broke ? 3
c) Write down the various types of screen used in paper industry. 3

3. a) A fourdrinier paper machine is given an order of producing 5
457.22 Tonnes of 60 GSM paper
1013.52 Tonnes of 90 GSM paper and
377.21 Tonnes of 180 GSM paper.
The width of paper machine is 10.0 m and from each side 10.0 cm of trimmings is being discarded. During every grade change 90 minutes is consumed to clean the machine and making arrangement at stock preparation and flow approach system before new grade is manufactured. The operating condition of paper machine is given below in table :

Order Number	GSM of Paper	Speed of paper Machine	Efficiency of Paper Machine
1)	60	36.0 km/hr	90.0%
2)	90	604.8 km/day	95.0%
3)	180	144.0 km/8.0 hr shift	99.0%

Calculate the total time required to complete the order.

- b) What is the role played by critical coagulation concentration (CCC) in helping paper making furnish coagulate ? Explain the process giving suitable example. 4
- c) Why jet to wire speed difference is very important parameter to control formation of paper? Explain with the help of a neat sketch. 4

OR

4. a) What is the necessity of studying paper making chemistry ? 4
- b) How does oriented hydraulic shear help in the formation of paper. 6
- c) A fourdrinier paper machine is running at a speed of 1200 m/mtr. The pulp fed in the headbox is of 1.0% consistency. Find out the height of pulp in the headbox assuming that it is kept open to the headbox. 3
5. a) Explain the dewatering characteristics of step foil used in the fourdrinier paper machine. 4
- b) "Dandy roll improves the formation of paper". Justify this statement by giving examples. 5
- c) Draw the filler distribution curve of traditional fourdrinier paper showing the two sidedness in paper sheet. <http://www.sgbauonline.com> 4

OR

6. a) What do you understand by hybrid blade former ? Explain the formation of paper using this type of former by drawing a neat sketch. 6
- b) Draw a drainage split diagram of twin wire suction forming roll. 4
- c) Write down the advantages of gap blade formers over gap roll formers. 3

SECTION - B

7. a) A rotoformer mould machine was used to manufacture 230 GSM paper. The diameter of cylinder was 3.0 m and the speed of cylinder rotation was 4.0 R.P.M. If the trimmed width of machine was measured to be 4.0 m calculate the yearly production rate in Tonne's per annum. Assume 99.0% efficiency of paper machine. 5
- b) According to priority list the various requirements you consider necessary for a good stock entry system in cylinder mould machine. 5
- c) Why heavy GSM sheet is produced on counter flow cylinder mould vat ? 3

OR

8. a) Why squirrel cage cylinder mould design is preferred in machine ? 3
- b) Discuss the important characteristics of modern web forming cylinder mould machines. 5
- c) What do you understand by squareness ratio of paper ? Write down the values of squareness ratio of good hand made paper along with cylinder mould paper. 5

9. a) With the help of moisture profile of paper in CD direction explain the role played by nip pressure distribution in maintaining moisture profile after pressing. 5
- b) What is the effect of felt washing on the porosity of felt ? If felt is not washed list the various problems paper technologist would face. 4
- c) Why crowning of press rolls is very important ? What benefits would you obtain by proper crowning. 4

OR

10. a) What do you understand by hard and soft press nip ? Explain with the help of a neat diagram. 4
- b) Why extended nip press is preferred in modern presses ? Explain with the help of a neat sketch working of extended nip press. 6
- c) Why angle of take off has to be studied in press section ? 3
11. a) Write down the various sheet properties which play a role during drying of paper. 4
- b) What do you understand by falling rate drying stage ? 3
- c) A dryer is to be designed to remove water from paper at the rate of 45 kg/hr. Hot air is admitted in the dryer at 70°C (343 K) with a dew point of 5.0°C and atmospheric pressure. The exit air leaves the dryer at 35.0°C and a dew point of 24.0°C and total pressure of 750 mm Hg. Calculate the volumetric flow rate of air to be sent to the dryer at the entering condition. 7
- Given : Vapour pressure of water at 5.0°C } = 6.0 mm Hg
Vapour pressure of water vapour at 24°C } = 22.0 mm Hg

OR

12. a) How would you remove condensate collected inside the cylinder dryers ? If the condensate is not removed what problems would you face ? 5
- b) Where would you use convective drying process to dry paper ? What are the advantages of such drying process ? 4
- c) Explain the gas based infrared drying process. What are the characteristics of infrared light produced ? 5

http://www.sgbauonline.com

Whatsapp @ 9300930012

Your old paper & get 10/-

पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से