

MINOR TEST II: TXL 231

Fabric Manufacture I

Maximum Marks: 25

- 1) What are the four grades of PVA used for warp sizing? Which grade is used for sizing of 100% cotton yarn and why? Explain your answer with the chemical structure of suitable grade of PVA. [1+3]
- 2) A sizing machine is running at 100 m/min speed with 6000 ends. The add-on requirement is 12% and the concentration of size paste is 18%. If the yarn count is 20 tex (without any moisture) and residual moisture content in the sized yarn and film after drying is 10%. One drying cylinder can evaporate 1.02 kg water per minute. Calculate the following:
- a) Oven dry mass of warp passing through the machine/min
 - b) Total wet pick up by the warp
 - c) Total amount of water to be evaporated
 - d) No. of drying cylinders required
- [4]
- 3) Determine the ratio of strain created in the warp threads during shedding by the front heald and back heald if the total shed length (distance between the cloth fell and back rest) is 120 cm, front shed length for the front heald is 20 cm, distance between the front and back heald is 4 cm, diameters of reversing rollers are 5 cm and 6 cm. [5]
- 4) What is skip drafting? What is its advantage? Show the design, drafting and lifting plan for skip drafting when six healds are being used for plain weave. [1+1+2]
- 5) With respect to shedding, explain the following with suitable diagram and hypothetical example.
- a) What is heald staggering
 - b) When is it practiced
 - c) How is it implemented on loom
 - d) What is the advantage
- [4]
- 6) Name the parameters needed for the design of a shedding cam. For 3/1 twill weave, determine (showing calculations) the span (in degrees) for the two dwells and two movements.
Small dwell = $\frac{1}{3}$ of pick. [2+2]