[Total No. of Questions - 9] [Total No. of Pr d Pages - 4]
(2066)

16142(J)

B. Tech 6th Semester Examination

Fabric Manufacture-III (NS)

TE-325 June-16

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : The question paper consists of five sections A, B, C, D and E. The candidates are required to attempt five-questions in all selecting one question from each of section A, B, C, D, and all the subparts of the questions in Section E.

SECTION - A

1. (a) What are the common features of unconventional Weaving? (4)

   (b) Explain the basic concept of increasing the weft insertion rate in shuttleless weaving. (10)

   (c) Discuss different types of weft accumulator. (6)

2. (a) Discuss the process parameters of sizing followed for shuttleless weaving. (10)

   (b) Explain the precautionary measures that should be taken for warping. (5)

   (c) Explain about weft preparation for shuttleless weaving. (5)

[P.T.O.]

SECTION - B

3. (a) Enumerate the Torsion Bar Picking system of Sulzer loom with neat sketch. (10)

   (b) Discuss the role of relay nozzle pressure on air consumption, insertion time and correct flight of the weft. Hence suggest the level of relay nozzle pressure that should be kept in air-jet loom. (6)

   (c) Explain the four major drawbacks of air-jet loom. (4)

4. (a) With a schematic diagram show the different components in the path of weft of a typical modern water-jet loom. Briefly state the function of each component. (8)

   (b) Explain the term "timing control" relevant to air-jet loom. Give a schematic diagram to show the air supply and timing control in any modern air-jet loom. Discuss the significance of different inputs and outputs that you have indicated in the diagram. (12)

SECTION - C

5. (a) With a schematic diagram show the different components in the path of the weft of modern flexible rapier loom working on the Dewas principle. Briefly state the function of each component you have shown. (8)

   (b) Assuming asynchronous and simple harmonic rapier movement with negative weft transfer for the above loom, show graphically with timing at different positions, the following:

   (i) Rapier head displacement and velocity pattern.

   (ii) Weft displacement and velocity pattern.

   Assume 20° phase difference between the movements of the two rapiers. (7)

(c) From the timing given by you above calculate the average as well as maximum rapier and weft velocities. Hence, find the figure of merit of weft velocity pattern. Consider reed width of 1.9 meters and loom speed of 550 r.p.m. Neglect overlap of rapier in your calculation. (5)

6. (a) Explain the concept of wave shed principle of multiphase looms. What are the reasons for lack of popularity of rectilinear wave shed weaving machines? (5)

(b) Explain the weft insertion mechanism of multiphase weaving machine. (8)

(c) Discuss different types of circular weaving machine and state their product. (7)

SECTION - D

7. (a) Classify narrow fabrics and mention their uses. (5)

(b) Explain the process of manufacturing wilton and brussel carpets with all technical specifications. (12)

(c) What are the application areas of these carpets? (3)

8. (a) Define Narrow Weaving and state their application area in various fields. (5)

(b) Explain the mechanism of weft insertion of narrow weaving. (8)

(c) Write down a brief note on Carpet weaving. (7)

SECTION - E

(All question are compulsory)

9. (a) Distinguish between guided and unguided flexible rapiers.

(b) "Air-jet looms are capable .of running at higher speed as compared to that of projectile and rapier loom." —Justify.

(c) What is the use of tandem nozzle in air-jet weaving?

(d) State the application domain of rapier weaving machine.

(e) Which type of selvedge is preferred for projectile weaving?

(f) What is the role of weft cutter in shuttleless weaving?

(g) Which type of weaving machine is used to produce Tubular Cloth?

(h) Why "Dewas" system of weft transfer is preferred over "Gabler" system in modern bilateral rapier loom?

(i) What is the function of main nozzle and what is the range of air pressure generally kept in it for airjet loom?

(j) Mention the names of few natural fibres which are used to produce carpets. (10×2=20)