

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II (Old course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 1722501

Date:16/05/2015

Subject Name: Theory and Design of Textile Machines II

Time: 02:30 pm to 5:00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) While considering parameters affecting selection of modern looms, discuss effect of following on performance: **07**
(i) Influence of warp length (ii) Flexibility
- (b) Compare stress on the weft yarn with reference to projectile, air jet and rapier looms. **07**

- Q.2** (a) Which factors affect the yarn stresses in warping and beaming? Discuss any two in detail. **07**
- (b) While considering polytropic air flow, define different zones of the main nozzle design. **07**

OR

- (b) What is the effect of sizing on abrasion resistance and tensile strength of yarn? **07**

- Q.3** (a) With special reference to narrow fabric weaving, what are the effects of pick spacing and warp tension on beat-up force? **08**
- (b) Multicoloured warps of a 50s Nm spun yarns are wound on a horizontal section warping drum of 1.5 m diameter, on which inclines are fixed at 15 deg to the axis. Each warp is 3000 m long and 2 m wide and contains 6500 ends. Warp density on drum is 0.6 g/cm³. Determine the depth of yarn on drum when the warp is completed and the corresponding reed traverse per section. **06**

OR

- Q.3** (a) Write on various equations of air drag acting parallel and perpendicular to yarn axis on an air jet loom. **07**
- (b) Write briefly on cloth fell position. **07**

- Q.4** Taking a hypothetical example, show general features of shed-shape characteristics taking reed displacement angle versus shed angle. Also draw only shed-shape for a loom having no dwell and having shed crossing at 330 and 270 degrees. **14**

OR

- Q.4** Write on various equations for axial and transverse air flows acting on the weft yarn on air jet loom. Also write on equation taking in to consideration complex yarn structure. **14**

- Q.5** (a) Draw sketches of four bar, six bar and conjugate cam type beat-up mechanisms. What are the important design conclusions related with all three mechanisms? **07**
- (b) Write in short on effect of relay nozzle diameter and blowing time on loom performance. **07**

OR

- Q.5** (a) Compare performance of cycloidal cam to SHM cam in terms of warp breakages and warp tension. **07**
- (b) How starting mark (Set marks) defect originate on loom? Explain for different let off mechanisms.