Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER II EXAMINATION – SUMMER 2017

Subject Code: 2722509 **Date:26/05/2017**

Subject Name: Theory and Design of Textile Machine II

Time:02:30 PM to 05:00 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)** Explain the concept of single end sizing using slot applicator. **07**

(b) Discuss LD short & LD long settings with reference to EYC. **07**

Q.2 **(a)** Multi-coloured 30^s warp wound on a horizontal section warping mill of 1.5 dia.,on which inclines are fixed at 15° to the axis. Each warp is 3000m long and 2m wide and contains 6000 ends. The warp density is 0.6 g/cc. Calculate the depth of yarn on the mill when warp is completed & corresponding reed traverse per section. **07**

(b) Discuss in detail about balanced weaving process. **07**

OR

(b) Why ring spun sized yarn shows better weaving characteristics than rotor spun yarn ? **07**

Q.3 **(a)** Give the equations for longitudinal and traverse drag force on yarn with respect to air drag theory for airjet weaving. **07**

(b) Explain the effect of shed formation on warp thread entanglement. **07**

OR

Q.3 **(a)** Graphically explain the relationship between angular displacement and acceleration to main shaft degree in different beat-up mechanisms. **07**

(b) Discuss about the low tension method for start-up mark prevention in weaving. **07**

Q.4 **(a)** Compare stress on weft yarn with reference to projectile, rapier and air-jet looms. **07**

(b) Show general features of shed-shape characteristics taking reed displacement angle v/s shed angle by taking hypothetical example. **07**

OR

Q.4 **(a)** Explain main nozzle design relating to air flow for air jet weaving machine. **07**

(b) Calculate the impact velocity from the following data and give your comments. **07**
The mass of shuttle is 470g. when the pirn is full & 450g. when pirn is empty. Shuttle's impact is not less then 4 m/s when loom is correctly running and strikes the swell at 14 m/s and uniformly retarded over a distance 0.018m up to impact with the picker.

Q.5 **(a)** Draw only shed-shape for a loom having No dwell and Heald dwell only and having shed crossing at 270°, 300°, 330° and 360°. **07**

(b) Write a note on- Aspects of fabric quality and assurance. **07**

OR

Q.5 **(a)** Compare multiphase wave shed weaving system with shuttleless looms with respect to weft tension phenomenon. **07**

(b) For a shuttle loom, calculate max. permissible loom speed from following data. **07**
Effective reed space =48" Avg. shuttle speed =13 m/s.
Duration of picking =130° Effective length of shuttle =30 cm.

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