# GUJARAT TECHNOLOGICAL UNIVERSITY

**ME - SEMESTER–II(New course) EXAMINATION(Remedial) –WINTER 2015**

**Subject Code: 2722509** **Date:10/12/2015**

**Subject Name: Theory and Design of Textile Machine**

**Time:2:30 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.**

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|---|---|---|---|
| Q.1 | (a) | Discuss about woven fabric parameters affected by shed unbalancing. | 07 |
| | (b) | Derive a formula for avarage sley velocity for 4-link beat up mechanism. | 07 |
| Q.2 | (a) | Derive an equation for Tension in warp sheet of in case of friction at back rest. | 07 |
| | (b) | Discuss in detail about settings of EYC. | 07 |
| | | **OR** | |
| | (b) | Explain the pre wetting concept of yarn and give it's advantages. | 07 |
| Q.3 | (a) | Give comparison about the performance of cycloid cam to simple harmonic cam for warp breakages & warp tension. | 07 |
| | (b) | Multicolored 48s Nm warp wound on a horizontal section warping drum of 1.5 dia. ,on which inclines are fixed at 15 deg.to the axis. Each warp is 3000m long and 2m wide and contains 6500 ends. The warp density is 0.6 g/cc on drum. Calculate the depth of yarn on the mill when war is completed & corresponding reed traverse per section. | 07 |
| | | **OR** | |
| Q.3 | (a) | The mass of shuttle is 500g. when the pirn is full & 480g. when pirn is empty. Shuttle's impact is not less then 4 m/s when loom is correctly running and strikes the swell at 13 m/s and uniformly retarded over a distance .020m up to impact with the picker. Calculate the impact velocity and give your comments on it. | 07 |
| | (b) | With reference to 4 bar sley drive mechanism, draw the graphes of sley's angular displacement, velocity & acceleration against main shaft degree, also give your recommendations of β-values for different weaving machines. | 07 |
| Q.4 | (a) | Show general features of shed-shape characteristics taking reed displacement angle v/s shed angle by taking hypothetical example. Draw only shed-shape for a loom having sley dwell and having shed crossing at 360 & 300 degrees. | 14 |
| | | **OR** | |
| Q.4 | (a) | Explain the effect of relay nozzle dia. and blowing time on loom performance. | 14 |
| | (b) | For a shuttle loom, calculate max. permissible loom speed from following data. Effective reed space =48" Avg. shuttle speed =13m/s. Duration of picking =135 Deg. Effective length of shuttle =28 cm. | |
| | (c) | Explain an elastic model of the picking mechanism with respect to alacrity. | |
| Q.5 | (a) | Write a note on evaluation of classimate faults for their performance in weaving. | 07 |
| | (b) | With your own example , calculate the heald shaft movement. | 07 |
| | | **OR** | |
| Q.5 | (a) | Which factors are taken in to consideration while investing in new weaving equipments? Discuss any two briefly. | 07 |
| | (b) | Compare multiphase wave shed weaving system with conventional shuttleless looms with respect to warp & weft tension phenomenon. | 07 |

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