Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME- SEMESTER II– EXAMINATION – SUMMER 2015

Subject Code: 2722509 **Date: 28/05/2015**

Subject Name: Theory and Design of Textile Machine II

Time: 2:30 PM – 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)	Explain how shed timing & shed unbalancing have some effect on the cloth making process and fabric cover.	07
	(b)	Define various zones of air flow with respect to main nozzle	07
Q.2	(a)	Derive an equation for Tension in warp sheet of floating back rest, also plot a graph for values of θ=0, 45 & 90Deg.	07
	(b)	Discuss in detail about LD Short and LD Long settings of EYC.	07
		OR	
	(b)	Explain the impact of sizing on physico-mechanical properties of yarn.	07
Q.3	(a)	Give comparison about the performance of cycloid cam to simple harmonic cam for warp breakages & warp tension.	07
	(b)	Multicolored 50s 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 0.51 kg. when the pirn is full & 0.48 kg. when pirn is empty. Shuttle's impact is not less then 4.5m/s when loom is correctly running and strikes the swell at 13.75m/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 no dwell and having shed crossing at 270 & 330 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 =52" Avg. shuttle speed =13m/s. Duration of picking =135 Deg. Effective length of shuttle =30 cm.	
	(c)	Discuss on concept of pre-wetting in spun sized yarn.	
.5	(a)	Write in short on effect of shed formation on warp tension.	07
	(b)	What are the causes of starting mark defect? Explain for different let-off mechanisms..	07
		OR	
Q.5	(a)	Which factors are taken in to consideration while investing in new weaving equipments? Discuss any two briefly.	07
	(b)	Give various equations for axial and transverse air flows acting on the weft yarn on air jet loom.	07