

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023

Subject Code: 3172912

Date: 16-12-2023

Subject Name: Principles of Textile Processes

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain briefly about alacrity of picking mechanism.	03
	(b) Derive an equation for sley velocity and acceleration.	04
	(c) Discuss briefly effect of l/r ratio on type of movement to sley.	07
Q.2	(a) Briefly explain about the cleaning efficiency of blow room?	03
	(b) Discuss the factors affecting drafting force.	04
	(c) Explain the retardation of shuttle with hinged swell, along with necessary diagrams.	07
OR		
Q.3	(c) Explain foster theory of perfect drafting.	07
	(a) What is perfect drafting? Why it is not achieved in conventional draw frame.	03
	(b) Discuss the various factors affecting the unwinding tension.	04
	(c) With suitable curves discuss the velocity and acceleration of projectile.	07
OR		
Q.3	(a) Explain interrelationship between shedding and beating.	03
	(b) Write short note on power required for picking.	04
	(c) What is cylinder loading? Drive an equation to calculate cylinder loading.	07
Q.4	(a) Explain the significance of fiber acceleration behind top comb.	03
	(b) Discuss the causes of end breaks in ring frame.	04
	(c) Derive an equation to find out transfer efficiency in card.	07
OR		
Q.4	(a) Explain the importance of size pick up.	03
	(b) Briefly write about the factors which influence uniform acceleration during picking.	04
	(c) Explain with neat sketch various types of stretch zones in sizing machine.	07
Q.5	(a) State the configuration of fibers in card sliver.	03
	(b) State the limitations of negative friction type let off motion.	04
	(c) Derive the formula for friction forces in negative let off motion also discuss design of let off mechanism	07
OR		
Q.5	(a) Is the acceleration of shuttle uniform? Why?	03
	(b) Discuss briefly various aspects of weft insertion in Airjet loom.	04
	(c) Derive an equation of yarn tension at any radius 'r'.	07
