GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2024

Subject Code:3172912   **Date:11-12-2024**

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 interrelationship between shedding and beating.	**03**
	(b)	Derive an equation for sley velocity and acceleration.	**04**
	(c)	Explain the retardation of shuttle with hinged swell, along with necessary diagrams.	**07**
Q.2	**(a)**	What is perfect drafting? Why it is not achieved in conventional draw frame.	**03**
	(b)	Explain only procedure to find out transfer efficiency.	**04**
	(c)	What is cylinder loading? Derive an equation to calculate cylinder loading.	**07**
		OR	
	(c)	Derive an equation for traveler speed.	**07**
Q.3	**(a)**	Explain the term kinematics for sley.	**03**
	(b)	Discuss the various factors affecting the unwinding tension.	**04**
	(c)	Discuss briefly effect of l/r ratio on type of movement to sley.	**07**
		OR	
Q.3	**(a)**	Explain the significance of fiber acceleration behind top comb.	**03**
	(b)	Discuss the factors affecting drafting force.	**04**
	(c)	Explain foster theory of perfect drafting.	**07**
Q.4	**(a)**	Is the acceleration of shuttle uniform? Why?	**03**
	(b)	Explain briefly power required for picking.	**04**
	(c)	Derive the formula for friction forces in negative let off motion also discuss design of let off mechanism.	**07**
		OR	
Q.4	**(a)**	What is cleaning efficiency of blow room?	**03**
	(b)	What are the reasons of end breaks at ring frame? Discuss any two.	**04**
	(c)	Derive an equation of yarn tension at any radius 'r'	**07**
Q.5	**(a)**	Explain, chase length and coil density in reference to optimizing yarn content on ring bobbin.	**03**
	(b)	State the types of stretch in sizing and factors affecting it.	**04**
	(c)	Discuss the velocity and acceleration of projectile with suitable curves.	**07**
		OR	
Q.5	**(a)**	Explain the importance of size pick up.	**03**
	(b)	Derive equation of winding tension (Tw) in a spinning balloon zone.	**04**
	(c)	Discuss briefly various aspects of weft insertion in airjet loom.	**07**

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