

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:3172912****Date:06/06/2022****Subject Name:Principles of Textile Processes****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.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

- | | | |
|------------|--|-----------|
| Q.1 | (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) Derive an equation of yarn tension at any radius 'r'. | 07 |
| Q.2 | (a) Explain the importance of size pick up. | 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 |
| OR | | |
| | (c) Explain foster theory of perfect drafting. | 07 |
| Q.3 | (a) Explain the term kinematics for sley. | 03 |
| | (b) Discuss various factors affecting size pick up. | 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) What are the reasons of end breaks at ring frame? | 04 |
| | (c) Define and derive an equation for carding transfer efficiency. | 07 |
| Q.4 | (a) Explain briefly about Alacrity of picking mechanism | 03 |
| | (b) Discuss briefly various aspects of weft insertion in airjet loom. | 04 |
| | (c) Derive an equation to calculate drafting force. | 07 |
| OR | | |
| Q.4 | (a) Explain interrelationship between shedding and beating. | 03 |
| | (b) Discuss the factors affecting drafting force. | 04 |
| | (c) Derive the formula for friction forces in negative let off motion also discuss design of let off mechanism. | 07 |
| Q.5 | (a) State the configuration of fibers in card sliver. | 03 |
| | (b) Derive equation of winding tension (Tw) in a spinning balloon zone. | 04 |
| | (c) With suitable curves discuss the velocity and acceleration of projectile. | 07 |
| OR | | |
| Q.5 | (a) Briefly write about the factors which influence uniform acceleration during picking. | 03 |
| | (b) Discuss the various factors affecting the unwinding tension. | 04 |
| | (c) What is cylinder loading? Derive an equation to calculate cylinder loading. | 07 |
