

Seat No.: _____

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GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2018****Subject Code: 2182901****Date: 04/05/2018****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.

MARKS

- Q.1** (a) Explain the term kinematics for sley. **03**
 (b) Derive an equation for sley velocity and acceleration **04**
 (c) Explain foster theory of perfect drafting. **07**

- Q.2** (a) What is perfect drafting? Why it is not achieved in conventional draw frame. **03**
 (b) Discuss the factors affecting drafting force. **04**
 (c) Derive an equation to calculate drafting force. **07**

OR

- (c) Derive an equation of yarn tension at any radius 'r'. **07**
Q.3 (a) What is cleaning efficiency of blow room? **03**
 (b) What are the reasons of end breaks at ring frame? **04**
 (c) Calculate drafting force required to draft the material, if fiber length at front roller of draw frame is as follows: **07**

| | | | | | | |
|--------------------|----|-----|-----|-----|-----|-------|
| Fiber Length in cm | 6 | 5.9 | 5.8 | 5.7 | 5.6 | Total |
| Fiber flux | 10 | 9 | 10 | 8 | 8 | 45 |

Single fiber withdrawal force – 1 gm

No. of fibers entering from back roller – 3000, Total draft - 12

OR

- Q.3** (a) Explain the significance of fiber acceleration behind top comb. **03**
 (b) Explain only procedure to find out transfer efficiency. **04**
 (c) Derive an equation for traveler speed. **07**
Q.4 (a) State the limitations of negative friction type let off motion. **03**
 (b) Derive equation of winding tension (T_w) in a spinning balloon zone. **04**
 (c) Explain the retardation of shuttle with hinged swell, along with necessary diagrams. **07**

OR

- Q.4** (a) Explain the importance of size pick up. **03**
 (b) Discuss various factors affecting size pick up. **04**
 (c) With suitable curves discuss the velocity and acceleration of projectile. **07**
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) Discuss briefly effect of l/r ration on type of movement to sley. **07**

OR

- Q.5** (a) Explain briefly about Alacrity of picking mechanism. **03**
 (b) Write short note on 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**
