

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (NEW) EXAMINATION – WINTER 2018****Subject Code: 2182901****Date: 26/11/2018****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.

- Q.1** (a) Discuss about cleaning efficiency of blow room. **03**
 (b) State various limitation of negative friction type let off motion. **04**
 (c) Discuss the factor affecting drafting force and derive equation to calculate drafting force. **07**

- Q.2** (a) Calculate the traveler speed with the following: **03**
 Package radius – 2 cm, Spindle speed – 12000 rpm, T.P.I - 20
 (b) Discuss the factors which influence uniform acceleration during picking. **04**
 (c) Explain the retardation of shuttle with hinged swell, along with necessary diagrams. **07**

OR

- (c) What are the reasons of end breaks at ring frame? Explain briefly. **07**
Q.3 (a) Explain briefly about stretch control. **03**
 (b) Explain various factors affecting drafting force. **04**
 (c) What is cylinder loading? Derive an equation to calculate cylinder loading. **07**

OR

- Q.3** (a) State important aspect to be considered for designing of picking cam. **03**
 (b) Discuss about trailing hook formation mechanism on a card. **04**
 (c) Derive an equation to calculate the fractional efficiency of comber. **07**
Q.4 (a) Discuss factors affecting velocity of the shuttle on a loom. **03**
 (b) Write in short on 'Power required for picking'. **04**
 (c) Explain the importance of size pick up. Hence discuss the various factors affecting it. **07**

OR

- Q.4** (a) Explain the alacrity of picking mechanism. **03**
 (b) Described interrelationship between shedding and beat up briefly. **04**
 (c) Explain the term kinematics and derive an equation for sley velocity and acceleration. **07**
Q.5 (a) Explain short and long term variations during unwinding of Ring bobbins on winding machines with suitable diagrams. **03**
 (b) Discuss about various factors affecting the unwinding tension. **04**
 (c) Derive an equation of yarn tension at any radius 'r'. **07**

OR

- Q.5** (a) Explain importance of r/l ratio in sley movement. **03**
 (b) Explain, chase length and coil density in reference to optimizing yarn content on ring bobbin. **04**
 (c) Using suitable diagram discuss about velocity, acceleration and retardation of projectile. **07**
