

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Sem. – IV - Examination –June- 2011

Subject code: 142901**Subject Name: Yarn Manufacturing-II****Date:06/06/2011****Time: 10.30 am – 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.

Q.1 (a) Calculate comber production in kgs/ shift/machine from the following **07** particulars.

- | | |
|----------------------------------|-----------------|
| 1. Type of feed | -backward. |
| 2. Detachment setting | -15 mm. |
| 3. Waste percentage | -20.25. |
| 4. Comber speed | -350 nips/ min. |
| 5. Comber lap weight (net) | -21 kgs. |
| 6. Comber lap length | -300 meters. |
| 7. Efficiency | -88%. |
| 8. Maximum fibre length(f_m) | -40 mm |

(b) Calculate 1.Speed frame production in kgs/shift/ spindle 2. Bobbin speed (rpm) **07** and bobbin rail speed (inches/min) at the start, from the following particulars.

- | | |
|--------------------------|--------------|
| 1. Spindle speed | -1100 rpm. |
| 2. TPI | -1.5. |
| 3. No of coils/ inch | -15. |
| 4. Hank of roving | -2.2. |
| 5. Empty bobbin diameter | -1.5 inches. |
| 6. Efficiency | -84%. |

Q.2 (a) What is differential motion? Explain use of differential motion on comber and speed frame. **07**

(b) What is autoleveller? Explain working of autoleveller draw frame with its types. **07**

OR

(b) Discuss the problem of roller slip on draw frame. **07**

Q.3 What do you mean by Electro-pneumatic builder motion? Explain how the reduction of bobbin speed and the reversal of direction of bobbin rail after each layer,are achieved by electro-pneumatic builder motion. **14**

OR

Q.3 Show the position of following change wheels on speed frame and speed frame gearing diagram and explain importance of each. **14**

1. Spacer.
2. Twist master or false twister.
3. Twist wheel.
4. Ratchet wheel.
5. Draft change wheel.

- Q.4 (a)** What is combing? What kind of process is combing? Explain one complete combing cycle with neat sketches. **07**
- (b)** Explain, with diagram, for forward feed and backward feed, which fibres go in to sliver and noil. **07**

OR

- Q.4 (a)** Explain modern comber lap preparation systems with its importance. **07**
- (b)** Explain influence of machine components and settings on combing performance. **07**

- Q.5 (a)** Explain drafting with its functions, ideal and actual drafting and role of fibre to fibre friction. **07**
- (b)** Discuss the factors affecting drafting force. **07**

OR

- Q.5** What is drafting wave? What are the causes of its occurrence at draw frame? **14**
Discuss technological design changes made in drafting systems to prevent drafting waves by the draw frame manufacturers
