

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
ME Semester –II Examination Dec. - 2011

Subject code: 1722502

Date: 12/12/2011

Subject Name: Theory of yarn Manufacture

Time: 02.30 pm– 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) In ring frame, derive an equation of required yarn tension at radius r . **07**
(b) Briefly explain fibre acceleration behind top comb in comber. Also discuss the effect of fibre acceleration on comber performance. **07**

- Q.2** (a) Define index of blend irregularity. Also discuss the types of blending at yarn spinning stage. **07**
(b) What is the need to moist the filament yarn before air jet texturing process? **07**

OR

- (b) “Air jet texturing process produces a torque free yarn.” explain. **07**
- Q.3** (a) Write in short on jet baffles and material of jet. **07**
(b) Write shortly on primary heaters used in draw texturing process. **07**

OR

- Q.3** (a) Write briefly on the types of nozzles used in air jet texturing with listing the special features of it. **07**
(b) List out the faults occur due to intermingling process and also explain it briefly. **07**

- Q.4** (a) Fibre length distribution of fibre at front roller of a draw frame is as follow **07**

Length of fibre in cms (I)	5	4	3	2	1	Total
No. of fibres (frequency)	0	8	6	4	2	20

If force required to withdraw single fibre from bundle is 1.5 gms and if there are 5000 fibres entering from back roller and draft employed is 20. Calculate the drafting force required to draft the material.

- (b) What is comber fractionation efficiency? Derive the equation to find out it. **07**

OR

- Q.4** (a) Discuss the role of yarn tension in ring frame to reduce end breakage rate. **07**

- (b) Calculate traveler speed at start and end of doff, if spindle speed is 15,000rpm, twist in yarn 20TPI and diameter of package at start is 3cms and 6.5cms respectively. **07**

- Q.5** (a) With neat sketch, classify air jet texturing processes. **07**
(b) List out different types of twist insertion in draw texturing process with principle. Also discuss any one of that in short. **07**

OR

- Q.5** (a) Explain the double density false twist machine working with neat sketch. **07**
(b) Define draw ratio and D/Y ratio in the texturing process. **07**
