

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E Sem-I Regular Examination January / February 2011****Subject code: - 712502N****Subject Name: - Theory and Design of Textile Machinery-I****Date: 01 /02 /2011****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)** Critically analyse the design concepts of developments that have been made in ring frame drafting systems with specific reference to floating fibre generation. **07**
- (b)** Discuss the importance of auto-levellers on a draw frame. State the type of auto-leveller you would prefer along with its location, for ring spun carded and ring spun blended yarn. Justify your answer. **07**
- Q.2 (a)** Give a brief account of automation on a ring frame with specific reference to piecing and doffing. **07**
- (b)** Elaborate on the areas of major change in cylinder wires and impact of these changes on cylinder loading, trash extraction and yarn quality. **07**
- OR**
- (b)** Describe the features of Blendomat-020. **07**
- Q.3 (a)** Write briefly on modifications made in builder mechanism, creel, flyer design and type of drive used on a speed frame. **07**
- (b)** Derive the formula for winding tension considering traveller mass, traveller speed, ring diameter and ring traveller friction as analysed by Krause. **07**
- OR**
- Q.3 (a)** “UNIlap sequence produces better lap quality.” How? Discuss with respect to improvement in batt length and batt strength. **07**
- (b)** Describe in short the manufacturing process for a traveller. **07**
- Q.4 (a)** What precautions are taken to control count variation and yarn faults at the draw frame stage? **07**
- (b)** Discuss the role of flats on a card with reference to individualization, cleaning and yarn appearance. Suggest optimum flat speed for H.P. card. **07**
- OR**
- Q.4 (a)** Describe the criteria for a modern ring. Describe the design changes incorporated with SU rings/Orbit rings to fulfill these criteria. **07**
- (b)** Briefly describe the significant developments that have taken place in carding, with their effect on quality and waste extracted at card. **07**
- Q.5 (a)** “Nipper movement has been made concentric in order to meet with heavier lap feed on a modern comber.” Explain with the help of suitable diagrams. **07**
- (b)** Discuss the design changes made to save Power and Noise generation in the construction of a modern spindle used on Ring frames. **07**
- OR**
- Q.5 (a)** Describe the opening effect of pre-cleaning devices used in Zone-II machines of blow room. **07**
- (b)** Describe the basic elements of chute feed system with their advantages and disadvantages. State the features of Exacta Feed System. **07**
