

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**DEPARTMENT OF TEXTILE TECHNOLOGY**  
**END OF SEMESTER EXAMINATIONS JUNE 2004**  
**YARN TECHNOLOGY III – TXT 4207**  
**TIME: 3 HOURS**

**INSTRUCTIONS**

Answer **Four** Questions only. Each question carries 25 marks

1. Discuss the effect of cotton dust. Explain how the industry has responded. (25 marks)
2. (a) Identify common yarn faults and the testing devices used. (9 marks)  
(b) Explain the operation principles used by mechanical cleaners to remove faults. (8 marks)  
(c) Explain the principles of electronic cleaners. (8 marks)
3. Discuss health protection for Textile workers in a Zimbabwean Spinning plant. Describe air-conditioning in such a plant. (25 marks)
4. Describe (thoroughly) 3 doubling methods. (25 marks)
5. Write notes on the relationship between the spindle speed at different package diameters with:  
- Constant and winding rate  
- variable winding rate (25 marks)
6. (a) Explain the principles of  
(i) additive tensioning system  
(ii) multiplicative tensioning systems (10 marks)  
(b) How do precision winders differ from drum driven package winders? (10 marks)  
(d) Illustrate how the angle of wind varies with increase in package diameter (5 marks)
7. Identify 5 fibres suitable for use in technical textiles. Explain all the necessary properties for each fibre that make it most suitable for the chosen end use. (25 marks)

**END OF QUESTION PAPER**

