

Mansoura University Faculty of Engineering Textile Department	Jan 2013 First Term Exam Time : 3 hr	B.Sc Exam Advanced spinning Code no. : 6411
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Answer the following questions:

**Question no. 1 : (answer only four items)**

( 16 marks)

- 1.1 Write notes on classification of textile yarns in terms of general classification , fiber composition and physical properties and performance characteristics.
- 1.2 Critically review the various spinning systems ( old, conventional and new ) indicating the relative merits , limitation of each system and the possibilities of use .
- 1.3 Write notes on the different principles of twist insertion in spinning systems for yarn production indicating twist potential and limitations of the various systems.
- 1.4 What are the criteria for the success of a new spinning systems.
- 1.5 Write notes on characteristic properties of the various types of yarn and idealized diagrams of yarn structures.

**Question no. 2 : (answer only two items)**

( 18 marks)

2.1) **In ring spinning system explain with illustration :**

- The principle of spinning , factors influencing spinning performance and some developments of machines

2.2) **In compact spinning systems:**

- i- Discuss the main object of the system
- ii- Compare between fiber condensation zone has been developed by Rieter , Suzen and Zinser
- iii- Write notes on the following : yarn structure, yarn properties, advantages of yarns in downstream processing and end products of compact yarns.
- iv- The possibilities of processing wool fibers and producing core spun yarn on compact system

2.3 **In siro spun system**

- i- write notes on the necessary additional components for produce siro spun yarn on a conventional ring spinning
- ii- Discuss the effect of machine variables on yarn geometry and quality

**Question no. 3 : (answer only two items)**

( 18 marks)

3.1 **Explain with illustrations the following**

- i- the principle of MJS yarn formation
- ii- factors affect on the amount of fiber wrapper
- iii- effect of spinning parameters on **MJS** yarn structure
- iv- effect of spinning parameters on yarn characteristics
- v- developments in air jet spinning

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### 3.2 Compare between the following systems:

Air jet spinning , open end spinning and ring spinning in terms of

- i- Machine construction , material used and count limits.
- ii- Yarn structure , yarn quality and fabric quality.
- iii- Yarn performance in subsequent process.
- iv- Productivity , running cost and floor space.

### 3.3 In friction spinning systems , write notes on:

- i- Principle of yarn formation..
- ii- kind of friction systems.
- iii- The features of m/c's.
- iv- Material used , count range and type of yarn.
- v- The quality of yarn and end products.
- vi- The advantages of system in comparison with woolen and open end spinning.
- vii- The master spinning and its specifications.

### Question no. 4 : (answer only three items)

( 18 marks)

4.1) Explain with illustration the principle of yarn formation and the influence of spinning parameters on yarn quality in the following systems .

- i- Bobtex spinning systems.
- ii- Twistless spinning system.

4.2) In fasciated spinning system , write notes on the following :

- i- The principle of yarn formation.
- ii- Outline the practical methods of applying these techniques to produce wool and cotton yarns.
- iii- The effect of spinning variables on fasciated yarn quality.

4.3) In wrap spinning techniques write notes on the following:

- i- Comparison between different system of wrap yarn production.
- ii- The operating principle of yarn formation and wrap yarn structure v.s conventional yarn.
- iii- Material used , counts limits , speeds , draft , yarn structure , yarn and fabric quality.

4.4) In fancy yarn production , explain with illustration :

- i- The classification of various ways of yarn production.
- ii- The principle of yarn formation.
- iii- The structure of various kinds of fancy yarns.
- iv- Fancy yarn end uses.

