Mansoura University
Faculty of Engineering
Textile Department

Jan 2013 First Term Exam Time: 3 hr B.Sc Exam Advanced spinning Code no.: 6411

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, Suzzen and Zinser

iii- Write notes on the following: yarn structure, yarn properties, advantage's 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

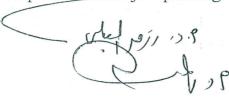
i- the principle of MJS yarn formation

ii- factors affect on the amount of fiber wrapper

iii-effect of spinning parameters on MTS yarn structure

iv-effect of spinning parameters on yarn characteristics

v- developments in air jet spinning



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 kindes of fancy yarns.
- iv- Fancy yarn end uses.

