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| Mansoura University | امتحان التخلفات | 1 st Year |
| Faculty of Engineering | 2013/2014 | Cotton Yarns Manufacturing |
| Textile Department | | Time : 3 hr |

Answer the following questions:

Q#1- Draw diagrammatic sketches for the following:-

- (i) Ginning preparation process
- (ii) Sequence of machines in blowroom installation
- (iii) Blowroom lines used for processing:-
 - a) Medium / long stable cotton fibres
 - b) Low and high trash content cotton
 - c) Man made fibres
- (iv) Layout of spinning mill to produce ring spun yarn (carded / combed) and open end yarn
- (v) Carding machine , operating region, flow of material, direction of rotation and stripping and carding positions.

Q#2- Explain with illustration

- (i) The basic operations in the blowroom
- (ii) General factors influencing opening and cleaning
- (iii) Interaction of "feed assembly , opening element and grid" with waste elimination
- (iv) The tasks and operating principle of the card.
- (v) Purpose and effect of carding segment
- (vi) Metallic cloth "wire profile, geometry and operating parameters"
- (vii) Fibre material used in short staple spinning

Q#3. Show by diagrammatic sketches only:

- a. Methods of combing preparation
- b. Drafting arrangement in ring spinning machine.
- c. Main parts of ring spinning unit
- d. details of a combing unit
- e. The relationship between roving bobbin speed and its diameter
- f. Methods of spindle drive in ring spinning machine.

Q#4

a. Explain with illustration:

- i. Combing cycle
- ii. Bobbin winding and laying in both roving and ring spinning machine

b. Discuss each of the following:

- i. Influence of fed length and fed sheet thickness on combing operation
- ii. Sequence of operation in combing machine
- iii. The relationship between roving twist and fibre length
- iv. Traveller material
- v. The ring material and the object of ring coating

Q#5

- a. What are the main objectives of both combing and combing preparation?
- b. A Combing machine of 6 heads has a speed 180 cycle/min, if the comber lap is 50 g/m, fed length is 5mm and noil percent is 16%. Calculate comber theoretical production in kg/hr.
- c. In ring spinning machine, ring diameter is 48 mm, spindle speed 12000 rpm, yarn count N_e 42, twist factor α_e 3.8 Calculate:
 - i. Yarn twist (turns/inch)
 - ii. Delivery speed (m/min)
 - iii. Theoretical production (g/spindle.hr)
 - iv. Difference in traveller speed (m/sec) as bobbin diameter increases from 30mm to 38mm.
 - v. Draft on ring spinning machine if contraction due to twist is 2% and fed roving count is 370 tex.

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