THE TEXTILE ASSOCIATION (INDIA)
A.T.A (REVISED) EXAMINATION-2016
PART II - PAPER - A 2.1

PRINCIPLES OF YARN MANUFACTURE

Date: 23.12.2016  Marks: 100  Time: 2pm to 5 pm

Instructions:
1. Attempt SIX questions out of which Q1 is Compulsory
2. Answer each next question on new page
3. Figures to the right indicate full marks
4. Illustrate your answers with sketches and flow charts wherever necessary
5. Use of non-programmable electronic pocket calculator permissible
6. Mobile and any other communication devices are not allowed in the exam hall
7. Assume suitable data wherever necessary

Q1

a. Fill in the blanks.  05
   i  Count is ________ yarn numbering system.
   ii Unit of tenacity in metric system is ________.
   iii Carding process facilitates ___________.
   iv The basic function of doffer is to strip the fibres from the ________.
   v The ratio of the delivered length to the feed length is defined as ________.

b. State true or false:  05
   i  Staple fibres must be compressed into bales to assist in transportation and storage.
   ii  Fibre to fibre cohesion is the highest in carded sliver.
   iii The grids do not have any influence on the cleaning effect.
   iv  Spinning characteristics are related to fibre length and ________.
   v  Card flat strips and grid waste should not be reused.

c. List and Write correct answer:  05
   i  The traveler should be (less, more, equally) hard as compared to the ring.
   ii  The flats of a card rotate at a speed typically in the range (8-20 cm/min., 8-20 m/min., 8-20 km/min.,)
   iii  Spiked lattices are usually located in (hoppers, beaters, peckers)
   iv  High speed in carding to economize the process leads to (improvement, reduction, optimization) in yarn quality.
   v  The process of allowing the cotton to relax and absorb moisture by removing bale ties is referred to as (bale relaxing, bale blooming, bale blossoming).

  c. Match the following:  05
     1  Delivered length to feed length. a. Fancy yarn

Page 1 of 2
Q2 Discuss the sequence of processes in short staple system of spinning of yarn with a flow chart and diagrams.

Q3 Write short note on i) Yarn Numbering System ii) Blending of fibres, iii) Ring and traveler and iv) Roller lapping.

Q4 a. Discuss the five broad categories of blow room machines.
   b. Discuss the significance of bale layout.

Q5 a. What is drafting? Explain the role of drafting in the draw frame with select examples.
   b. Describe the importance of combing and discuss the sequence of operations in combing.

Q6 a. Discuss briefly the functions of the card with the help of a section diagram.
   b. State the two rules of carding. Discuss their significance.

Q7 a. Discuss the role of speed frame with regard to yarn quality.
   b. What is roving tension? Describe the factors affecting the roving strength.

Q8 a. Calculate the length of the yarn on the package of 80/2 cotton yarn with a tare weight of 4.166 lb.
   b. Calculate the production of yarn in oz/spindle/shift on a ring frame if the spindle speed is 16000"/min, twist multiplier is 3.8, yarn count is 30/1 and efficiency of the machine is 93%.
   c. Calculate the grains/yard of the delivered sliver if feeding sliver is 72, doubling is 8 and the draft is 6.
   d. Calculate the TP! (twist per inch) on simplex, if the diameter of the black roller is 15/16 inches, rpm is 1000 and draft is 6.