THE TEXTILE ASSOCIATION (INDIA)
GMTA (REVISED) EXAMINATION – 2016
SECTION – D PAPER – D.1
PROCESS AND QUALITY MANAGEMENT IN YARN MANUFACTURE

Date: 26.12.2016
Marks: 100
Time: 02.00 pm to 05.00 pm

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

Q.1.
A. Say Yes or No in the following:–
   a. If staple length is increase then yarn quality is also increase (Yes/No).
   b. Toughness of fibre has a direct effect on yarn and fibre strength (Yes/No).
   c. If fibre strength is higher, then yarn and fabric strength is also higher (Yes/No).
   d. Short fibres improve the yarn strength and uniformity (Yes/No).
   e. Rotor yarn is “Z” twisted (Yes/No).
   f. For Ring frame yarn count CV%, the major contribution factor is from Draw frame sliver mass variation (Yes/No).
   g. More fibre drawing produces more short fiber & resulted weak yarn (Yes/No).
   h. Over twisted yarn become poor in strength (Yes/No).
   i. Ring yarn is “Z” twisted (Yes/No).
   j. The total draft in a comber ranges normally from 85 to 100 (Yes/No).

B. Choose the appropriate answer from the multiple choices in the following:–
   i. Process control is carried out
      a. Before production  b. during production  c. after production control  d. All of the above
   ii. The percent of the sample means will have values that are within ±3 standard deviations of the distribution mean is
      a. 95.5    b. 96.7    c. 97.5    d. 99.7
   iii. The chart used to monitor variable is
      a. Range Chart  b. P-chart  c. C-chart  d. All of the above
   iv. The chart used to monitor attributes is
      a. Range chart  b. Mean chart  c. p-chart  d. All of the above

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v. The control chart used for the fraction of defective items in a sample is
   a. Range chart  b. Mean chart  c. p-chart  d. c-chart

Q2.
A. What are the faults of yarn? Discuss each in brief.  
   B. What are the faults of blow room? Discuss each in brief.

Q3.
A. What are yarn faults and what are the reasons of yarn end breakages? Discuss. 
   B. Discuss the effect of fiber configuration on noil percentage & yarn quality. Also explain comber fractional efficiency.

Q4.
A. What do you understand by SQC? Explain the 4 main statistical tools used in SQC techniques.
   B. Explain the difference b/w quality control and quality improvement. Describe the stages of quality improvement.

Q5.
A. Discuss concept and reason of within bobbin count variation and between bobbin count variations.  
   B. List commonly used productivity indices and state their importance.

Q6.
Prepare a suitable production plan to establish a spinning unit with modern technology m/c having production capacity of 12000 kg of 30s Ne combed hosiery cotton yarn (considering 15% comber noil) per day; assuming appropriate process parameter. Workout no. of m/c for each section.

Q7.
A. Discuss common defects in drawing and its causes.  
   B. Discuss key elements of process control in combing.

Q8. Discuss briefly any two
   A. Autoleveller in Draw frame.  
   B. The impact of drawing on yarn quality  
   C. Influence of yarn properties on its performance during fabric manufacture.