THE TEXTILE ASSOCIATION [INDIA]  
GM.T.A (REVISED) EXAMINATION – 2014  
SECTION-D PAPER – D.4  
PROCESS & QUALITY MANAGEMENT IN YARN MANUFACTURE  

Date: 27.12.2014  Marks:100  Time: 02 pm to 05 pm  

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

Q. 1. A. Fill in the Blanks  

1. For any given cotton variety, the highest variation is in _________.  
2. The achievable spindle speed at a given twist on a ring frame depends on the ________ and _________.  
3. The standard moisture regain of cotton yarn is _______.  
4. Of the various causes of loss in efficiency at ring frames, the maximum is due to _________.  
5. The yarn faults are measured using ____________.  

B. Say true or false  

1. The waste removal & cleaning at the blow room depends on the amount and nature of trash in the mixing but not on the fibre properties.  
2. Processing of cotton in the blow room increases nep's, depending on the severity of the treatment.  
3. Variability of lea count and strength are totally dependent on the quality of the mixing.  
4. The sliver unevenness is nearly independent of the hank of the sliver but is governed by the length characteristics of the mixing.  
5. Superfine cottons have higher neps than coarse cottons.

C. Underline the correct answer  

1. The number of machines used in a blow room need to (increase, decrease, remain constant) with increasing trash content of the mixing.
2. The most popular method of fibre fineness measurement is based on (gravimetric, airflow, optical) principle.
3. Improvement in mean fibre length and reduction in short fibre content in the combing operation are used to estimate (realisation, fractionating, production) efficiency.
4. The quality of yarn achievable from a given mixing depends largely on the
type of drafting system at (drew frame, speed frame, ring frame).
5. Higher the moisture content, the tenacity of cotton (increases, decreases,
remains consistent).

D. Match the following (05)

1. Defective bearing & gears  a. Improves yarn quality
2. Delivered length to feed length ratio b. Doubling
3. Chonille c. Affects U%
4. Splicing d. Fancy yarn
5. Plying e. Draft

Q.2. a. Discuss the classification of yarn faults caused by mass variations (08)

b. Explain with suitable example, the variance length curve.

Q.3.a. Discuss the influence of specimen length on yarn tensile properties. (08)

b. Define the terms modulus, creep, stress and strain.

Q.4.a. Discuss the influence of yarn properties on its performance during fabric
manufacture with suitable examples.

b. Discuss the impact of yarn properties on the fabric quality with suitable
examples.

Q.5

a. Define process control. What are the considerations in evolving a system of
process Control ?

b. List the commonly used productivity indices and state their importance?

Q.6

a. What is spinning machine audit? What is its relevance in process control? (08)

b. Discuss the relevance and importance of process norms and standards in
spinning, with suitable examples

Q.7. Define the terms quality planning, process design, process monitoring and
control points with appropriate illustrations.

Q.8. Write short notes on any four of the following: (i) Significance of U% and CV(16)
(ii) Spectrogram (iii) Yarn realisation (iv) High volume testing instruments (v) Modern
developments in comber.

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2