Mansoura University	*Quality Control(Part 1)*	*Jan 2013*
Faculty of Engineering	*Code (6412)*	*B.Sc Exam.*
Textile Department	*Full Mark: 110*	*Time : 3 hr (for 2 parts)*

Part (1)

Answer the following questions:

1. **a** . What is the importance of quality control in textile industry?
   b . What are fibre properties can be measured by AFIS and by HVI.
   c. Explain the steps involved in conducting a waste% and cleaning efficiency of the blow room.
   d. How will you calculate the cleaning efficiency of blow room through cleaning efficiency of blow room machines?
   e. Explain the procedure to control comber noil% and Ends down in spinning

2. Write notes about:
   a. Shewhart Cycle
   b. ISO 9001
   c. Explain in details the appraisal cost of quality control
   d. influence of yarn evenness on yarn and fabric parameters

3. The following table gives the processing detailes for producing cotton yarn Ne 30, fibre length is 24 mm, and fibre fineness is 5.3 ug/ inch. Calculate:

   a. The index of irregularity of 2nd drawn sliver, roving and yarn
   b. Calculate the additional irregularity of roving and ring spinning frame
   c. Wave length of drafting waves in yarn spectrum due to:
      i. the main draft zone of roving frame
      ii. the main draft zone of ring spinning machine.

Process	*Doublings*	*Ne*	*C.V%*
1st drawing	6	0.14	5.36
2 nd drawing	6	0.14	5.45
roving	1	1.35	7.5
ring spinning	1	30	15.9

4. **a.** Explain the basic types of yarn irregularity , then discuss factors influencing them

   b. Referring to the Uster Evenness Tester , what is meant by : normal test , inert test and Spectrogram? Explain how spectrogram could be utilized to locate mechanical fault and discuss the importance of variance length curve.

   c. For the data in problem 3 draw theoretical variance length curve and draw-in process stages responsible for the mass variation introduced during the processing.

d. If the most uniform 20 tex staple yarn has a C.V of 12.53%, what is the lowest C.V% you would expect for 14tex yarn produced from the same fibres. What would be the C.V% of a two fold yarn produced from the single 14 tex yarn.

5. **a.** Fig.(1) shows drafting arrangement of a ring spinning machine for producing carded yarn Ne 64. If the produced yarn is without periodic faults and has C_{Vm} of 17.5 %. To what extent does the C_{Vm}% value increase if the front bottom roller has an eccentricity of 0.5%? Calculate wavelength of yarn periodic fault due to 2nd bottom roller eccentricity. Assume that diameter of both top and bottom rollers are equal.

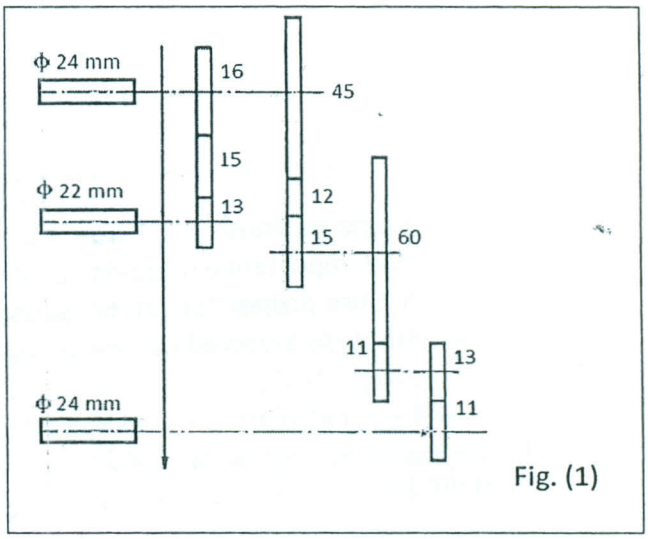

Fig. (1)

b. Determine minimum and maximum spectrum wavelength of a yarn tested by Uster Evenness Tester at 400m/min for 5 minutes.

c. Explain with a neat sketch the working principle of Shirley hairiness tester, showing how to deal with the output data.

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