THE OPEN UNIVERSITY OF SRI LANKA

DIPLOMA IN INDUSTRIAL STUDIES

FINAL EXAMINATION - 2006/2007

TTX3237 FIBRE TO FABRIC

DURATION – THREE HOURS

DATE: 8th March 2007   **TIME: 0930 – 1230 HOURS**


Total Number of questions =10. Number of questions to be answered = 06. Answer the Question 1, which is compulsory and additional five (5) questions.

Question 1 carries twenty five (25) marks. Other questions carry 15 marks each.

(1) (a) Name three sub categories falling under the category of vegetable fibres. **(1.5 Marks)**

  (b) Give 03 examples for widely used synthetic polymers. **(1.5 Marks)**

  (c) Explain in brief, why cotton is a very good water absorbing material. **(02 Marks)**

  (d) Give two reasons for felting of wool. **(02 Marks)**

  (e) Name 03 types of re-generated cellulose fibre. **(03 Marks)**

  (f) A filament yarn of 4500 metre length has a weight of 12 grams. Calculate both tex and denier counts of the yarn. **(04 Marks)**

  (g) Calculate the twist factor of a cotton yarn having a count of 60^s and a twist of 32 turns/inch. **(03 Marks)**

  (h) State 04 modern weft insertion methods? **(02 Marks)**

  (i) What is Glass Point (glass transition temperature)? **(02 Marks)**

  (j) Draw a knitted stitch & name its parts. **(02 Marks)**

  (k) State 04 examples for auxiliary motions of weaving. **(02 Marks)**

(2) (a) Give an in detail classification of man-made fibres in the form of an Inverted tree (chart).

(b) Briefly explain why wool is more suitable to make clothing for cold climates.

(c) Sketch the microscopic appearance of the following fibres:

(i)   Cross section of cotton
(ii) Longitudinal view of wool
(iii) Cross section of flax

(3) (a) Identify a natural fibre type which can be used for clothing under warm climates and explain the reasons for the suitability.

(b) Briefly discuss the
- Effect of acids and
- Effect of Alkali
on above fibre type.

(c) Identify the types of dyes which can be used for colouration of the above fibre.

(4) (a) Describe how doubling and drafting would improve the quality of slivers.

(b) Discuss the factors affecting the amount of twist given to a yarn.

(5) Write short notes on any 3 of following:
(a) Drawing   (b) Stripping action
(c) Carding   (d) Comber preparatory process
(e) Roving

(6)   (a) What are the major fibre properties affecting blending of fibres and properties of blended yarns?

(b) Explain the purpose of yarn folding?

(7)   (a) Define the term "Crimp Percentage".

(b) Briefly explain the following yarn preparatory processes:

(i) Winding

(ii) Warping

(iii) Pirn Winding

(8)   (a) What are the objectives of sizing?

(b) Explain briefly the process of sizing using a simple flow diagram.

(9)   (a) Draw a 'Latch Needle' and label all important parts of it?

(b) Draw the point paper presentations and yarn path diagrams of the following knitted structures:

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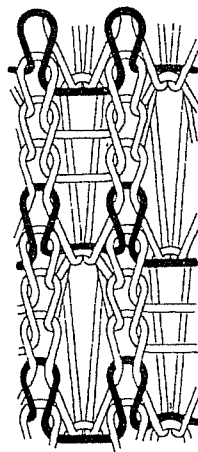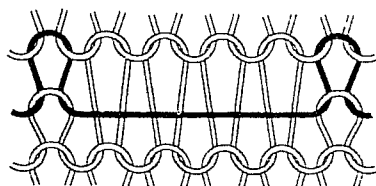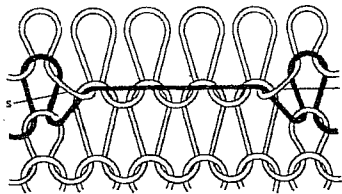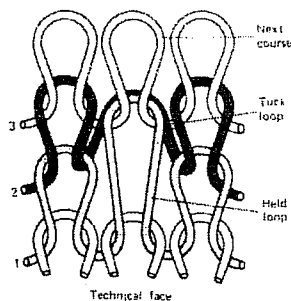
(10) (a) What do you understand by 'Web Formation' and 'Web Consolidation' as used in non woven fabric manufacture?

(b) Explain briefly the following methods of web formation:
- Use of cards
- Pneumatic method
- Hydrodynamic method.