

ADVANCED DIPLOMA IN KNITWEAR STUDIES AND MERCHANDISING
ADVANCED DIPLOMA IN APPAREL STUDIES AND MERCHANDISING

Examination Paper

1st Term 2014

Module Name: Textile Materials and Evaluation

Module Code: 326

Date: 3 Mar 2014

Time Allowed: 3 hours

Reading Time: 15 minutes

Examination Time: 7:15pm – 10:15pm

This question paper has 5 pages (including this page).

INSTRUCTION TO CANDIDATES:

- This paper has **EIGHT (8)** questions, with 5 questions in Section A, and 3 questions in Section B.
- **Question 1 in Section A is compulsory**, and answer at least one other question in Section A.
- Answer at least one question in Section B.
- You are required to answer **FIVE (5)** questions in total.
- All questions carry equal marks.

The following tools with an asterisk (*) are **NOT ALLOWED** in the examination:

- Paperback Dictionary *
- Electronic Dictionary *
- Open Book Examination Material *
- Programmable Calculator *

DO NOT TURN OVER THE PAGE UNTIL YOU ARE TOLD TO DO SO

Section A

Question 1 to Question 5

Question 1 is compulsory.

Answer at least ONE questions from Question 2 to 5

Question 1

Question 1 (Compulsory, answer all multiple choice questions in Question 1. Please write down the question number and the letter (in Capital) of the correct answer together on one page of the answer book. (10% per answer, total 100%)

1. Which one of the following fibers is thermoplastic?
 - A. cotton
 - B. flax
 - C. polyester
 - D. rayon

2. In a weaving machine, which part is controlling the construction and design of woven fabrics:
 - A. Reed
 - B. Shuttle
 - C. Harness
 - D. Warp beam.

3. When assessing the color **staining** on a fabric in a color fastness testing using the gray scale, a grade 5 means:
 - A. Slightly staining of color
 - B. No changing of color
 - C. No staining of color
 - D. Serious staining of color

4. Which stitch below is formed by holding two or more yarns within a needle?
 - A. plain stitch
 - B. purl stitch
 - C. tuck stitch
 - D. welt stitch

5. Which one of the following fiber does NOT loose strength when wet?
 - A. Silk
 - B. Wool
 - C. Rayon
 - D. Flax



6. If a yarn has a length of 32,000 m., weighs 0.72 kg., what is the yarn number in Denier?
 - A. 230.5 Denier
 - B. 63 Denier
 - C. 202.5 Denier
 - D. 78 Denier

7. What is NOT the advantage of open-end spinning?
 - A. Faster production
 - B. Increased strength
 - C. Better yarn uniformity
 - D. Improved absorption of colors

8. The residue of burning cotton fibre is:
 - A. Hard bead
 - B. Hollow bead
 - C. Ash
 - D. Solution

9. Which one below is NOT the function of “carding” in yarn spinning?
 - A. Fibres straightening
 - B. Fibres blending
 - C. Removing dirt and foreign matters
 - D. Twisting

10. Which construction below is defined as 3x2 RIB knit?
 - A. 3 wales of knit stitches and 1 wale of purl stitches
 - B. 3 courses of knit stitches and 2 courses of purl stitches
 - C. 3 wales of knit stitches and 2 wales of purl stitches
 - D. 3 courses of knit stitches and 1 course of purl stitches

Question 2

- (a) Define “natural” and “synthetic” fibres. Compare the general differences in performing properties between them with one example in each type of fibres. (60%)
- (b) List and describe briefly the production methods of the following yarns: (40%)
- i. Filament yarns (10%)
 - ii. Staple yarns. (30%)

Question 3

- (a) Draw with simple yarn path diagram the knitting construction of the following three basic knitted fabrics and describe briefly their characteristics: (50%)
- i. Single jersey (15%)
 - ii. 2x2 Rib (15%)
 - iii. Interlock (20%)
- (b) Draw the point diagram to show the construction of the following woven fabrics, and describe briefly their characteristics: (50%)
- i. Basket weave (15%)
 - ii. 3 up 1 down Left Hand twill weave (15%)
 - iii. 7-shaft satin weave (20%)

Question 4

- (a) Briefly describe the concept and functions of non-woven fabrics. What are the advantages and disadvantages of non-woven fabrics? (50%)
- (b) Explain the following processes with simple sketches in producing non-woven fabrics: (50%)
- i. Dry Laid of fibers (15%)
 - ii. Polymer Laid of fibers (15%)
 - iii. Needle Punching (20%)

Question 5

- (a) Describe separately the following two penalty system in fabric inspection. How do you calculate and define the pass and fail of a roll of fabrics? (40%)
- i. 4-point penalty system (20%)
 - ii. 10-point penalty system (20%)
- (b) If you are required to set up a fabric quality testing laboratory for a medium size garment factory producing casual wears, what tests and equipment will you recommended? Suggest at least 3 tests that are required. Give reasons to support your recommendation? (60%)

Section B

Question 6 to Question 8

Answer at least ONE questions from Question 6 to 8

Question 6

- (a) Examining a solid dyed, single-coloured fabric sample, what relevant information you must obtain from the sample to decide on the what dye(s) to be used and what dyeing machine is most suitable to use in a batchwise dyeing process give reasons on your decision. (50%)
- (b) Examining a multi-coloured printed fabric sample, which five(5) characteristics of the print would enable you to select the appropriate printing method using a print paste. (50%)

Question 7

The company you are associated with specializes in manufacturing children's wears. Activities in the company include sourcing raw yarns of cotton, wool, acrylic, polyester and their blends; preparing the yarn for knitting, weaving, dyeing, printing and garment making of children's wears exported to European markets:

- (a) What classes of dyes are stocked in the company, identify these classes for the fibres used; (20%)
- (b) For batch dyeing of the yarn, which two machines are installed in the company, give reasons for these two machines being used; (30%)
- (c) For batch dyeing of the fabric, which four machines might be necessary explain (30%)
- (d) On the products for export, which four colourfastness tests are most important explain (20%)

Question 8

Write short notes on five (5) of the following topics: (20% for each description) (100%)

- (a) The purposes of preparing a 100% cotton grey woven fabric, identify the process used for each purpose;
- (b) List all the steps in the manufacture of a double-mercerized 100% cotton knit from raw yarn;
- (c) The recommendations of ISO Standard Depth of shades;
- (d) The stages in their correct sequence in producing a textile print using a dye-containing paste;
- (e) The difference in both steps and ingredients of a discharge printing and a resist printing
- (f) Comparison of the ingredients used in a dye print paste and a pigment print paste;
- (g) The differences, procedures, devices and grading schemes of the colourfastness tests to washing and to light.

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