

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

**Examination Paper**

2<sup>nd</sup> Term 2016

Module Name: Textile Materials and Evaluation

Module Code: 326

Date: 26 Sep 2016

Time Allowed: 3 hours

Reading Time: 15 minutes

Examination Time: 7:15pm – 10:15pm

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

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**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.

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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 30,000 m., weighs 0.75 kg., what is the yarn number in Denier?
- 235 Denier
  - 63 Denier
  - 225 Denier
  - 78 Denier
7. What is NOT the advantage of open-end spinning?
- Faster production
  - Increased strength
  - Better yarn uniformity
  - Improved absorption of colors
8. Which one is true, cellulosic fibre is:
- Resistant to acid
  - Resistant to alkaline
  - Resistant to burning
  - Resistant to water
9. Which one below is NOT the function of “carding” in yarn spinning?
- Fibres straightening
  - Fibres blending
  - Removing dirt and foreign matters
  - Twisting
10. Which construction below is defined as 3x2 RIB knit?
- 3 wales of knit stitches and 1 wale of purl stitches
  - 3 courses of knit stitches and 2 courses of purl stitches
  - 3 wales of knit stitches and 2 wales of purl stitches
  - 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. (50 %)
- (b) Describe briefly the steps of burning test to identify fibre groups. Compare the differences in burning test to identify cellulose and protein fibres. (50 %)



### Question 3

- (a) Describe briefly the major spinning processes of “Ring Spun Yarns” of cotton fibres. (60 %)
- (b) i) How to produce plied yarns? What are the advantages of plied yarns? (20 %)  
ii) If there are 3 thinner yarns, each of which is 32,256 yds, and weight is 0.8 lb, what will the resultant cotton yarn count of the three-ply yarn? (20 %)

### Question 4

- (a) Draw with simple yarn path diagram the knitting construction of the following three basic knitted fabrics and describe briefly their characteristics.
- i) 2x2 Rib (20 %)  
ii) Interlock (20 %)
- (b) Draw the point diagram to show the construction of the following woven fabrics, and describe briefly their characteristics:
- i) 3 up 1 down Left Hand twill weave (20 %)  
ii) 5-shaft satin weave (20 %)
- (c) What are the major differences between woven and knitted fabrics? Explain with examples which types of garments are more suitable for each type of fabrics. (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?
- i) 4-point penalty system (30 %)  
ii) 10-point penalty system (30 %)
- (b) Describe briefly the requirements of setting up a fabric quality testing laboratory for a medium size garment factory producing casual wears. Identify two tests that you think must be installed in the testing laboratory, describe briefly the test methods and equipment required. (40 %)

## Section B

### Question 6 to Question 8

Answer at least ONE questions from Question 6 to 8

#### Question 6

- (a) When examining a single-colour dyed fabric sample, what relevant information you need to obtain before contacting a suitable factory to dye a quantity of fabric matching the sample you examine? (50 %)
- (b) When examining a multi-coloured print, what are the obvious variables on the print that might help you to choose the appropriate printing method using a dep-containing print paste? (50 %)

#### Question 7

A company manufactures knit goods for the following three types of garments:

- i) Children's night wears
- ii) Lady outer wears
- iii) Lady swimwears

The company purchases a variety of ready-to-dye yarn including cotton, polyester / cotton, wool, acrylic and nylon / Spandex yarns; the company dyes all the yarns and fabrics in addition to all necessary knitting production.

- (a) Identify the classes of dyes being used by the company for the various types of yarns purchased; (25 %)
- (b) What yarn and fabric dyeing machines are to be found in the company and for which type of garment. (60 %)
- (c) What colour fastness tests are needed for the three types of products mentioned? (15 %)

#### Question 8

Briefly compare Any five(5) of the following related processes: (100 %)

- (a) Pretreatment processes of a woven and a knit cotton fabric
- (b) Single and double mercerized cotton knit
- (c) Warp and rope dyeing for denim
- (d) Print paste formulations usage dye and using pigment
- (e) Discharge and resist printing
- (f) Cross dyeing and union dyeing of blends
- (g) Wet-on-dry and wet-on-wet printing effects