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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2016/2017**

COURSE NAME : TEXTILE ANALYSIS  
AND EVALUATION

COURSE CODE : BNH 30803

PROGRAMME CODE : BNH

EXAMINATION DATE : DECEMBER 2016 / JANUARY 2017

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION : ANSWERS ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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- Q1**
- (a) There is a number of reasons in the production cycle where testing may be carried out to improve the product. List **FOUR (4)** important reasons for textile testing. (4 marks)
  - (b) Predict **FOUR (4)** reasons that may contribute to errors in testing. (4 marks)
  - (c) The amount of moisture in a fibre sample can be expressed in either moisture content or moisture regain.
    - (i) Differentiate between moisture content and moisture regain. (2 marks)
    - (ii) A specimen weigh 3.2 gram when completely dried and 4.3 gram under standard conditions. Determine its moisture regain (MR) and moisture content (MC). (4 marks)
  - (d) Describe the purpose and working principles of digital fibrograph. (6 marks)
- Q2**
- (a) State the difference between technical test and non-technical test for fibre identification. Give example of **THREE (3)** non-technical tests that can be perform. (5 marks)
  - (b) A retailer insisted that the bed sheet he received is not 100% cotton but a mixture of cotton and polyester. Organize **THREE (3)** tests that you would perform to confirm his claim. Include the expected results and observations in your answer. (9 marks)
  - (c) List **THREE (3)** important tests that need to be done for firefighter's uniform. Justify why you need to conduct these tests. (6 marks)

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- Q3** (a) Construct fibre diagram and explain how to determine the effective length. (8 marks)
- (b) For the stress-strain curve in **Figure Q3 (b)**, determine:
- (i) Modulus
  - (ii) Yield force and yield elongation
  - (iii) Breaking force and breaking elongation
- (6 marks)
- (c) Analyse the elongation percentage if a fabric specimen stretches 2.2 cm during tensile testing. (Gage length = 75 mm) (2 marks)
- (d) Fabric crimp introduces a small variation in force-elongation curves. Create a force-elongation curve that could explain the effect. Recommend the right way to remove the crimp effect from the curve. (4 marks)
- Q4** (a) Yarn twist influences the fabric properties. Interpret the effect of low and high twist insertion on these fabric properties:
- (i) Handle
  - (ii) Abrasion
  - (iii) Moisture absorption
- (6 marks)
- (b) Explain the purpose of yarn hairiness test. Point out **TWO (2)** important reasons on why hairiness on yarn need to be controlled. (4 marks)
- (c) List **THREE (3)** causes of yarn irregularity and identify the effects on textile performance and appearance. (6 marks)
- (d) Develop a plan for testing fabrics for possible use as swimwear. Take into account the influence of pool water and fabric tension and stretch. (4 marks)

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**Q5** (a) Describe the importance of conducting the following fabric testing. For each testing, recommend **ONE (1)** application that requires the testing.

- (i) Stiffness
- (ii) Pilling
- (iii) Air permeability

(6 marks)

(b) Illustrate the method of assessing drape of fabric by Cusick drape test. Propose **TWO (2)** example of applications that requires high drapability.

(6 marks)

(c) Calculate the mean drape coefficient for a fabric with the following results:

- Weight of paper pattern of undraped specimen: 5.388 g
- Weight of paper pattern of draped specimen 1: 4.008 g
- Weight of paper pattern of draped specimen 2: 4.372 g
- Weight of paper pattern of draped specimen 3: 4.118 g

(4 marks)

(d) Sketch the working principles of air permeability test.

(4 marks)

**-END OF QUESTIONS -**

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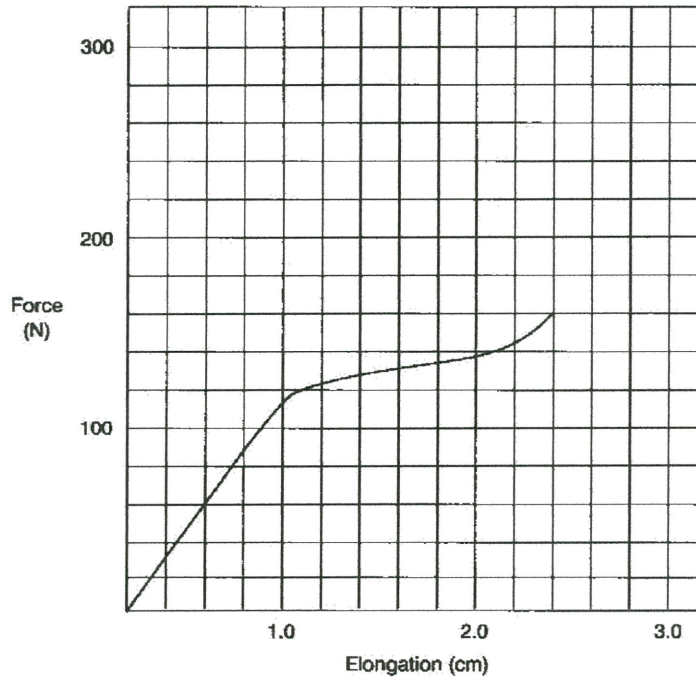


Figure Q3 (b)

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