



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2014/2015**

COURSE NAME : ADVANCED NONWOVEN
TECHNOLOGY

COURSE CODE : BNH 30703

PROGRAMME : 3 BNH

EXAMINATION DATE : JUNE / JULY 2015

DURATION : 2 HOURS 30 MINUTES

INSTRUCTION : ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES



- Q1** (a) Explain briefly at least **FOUR (4)** factors that influence the shape and number of holes in needlepunched fabrics. (4 marks)
- (b) Hasmi is planning to produce nonwoven fabrics that have a flexible bonding point, but with no pillar of fiber exist in the cross section of the fabrics. As a textile technologist at Hasmi's company:
- (i) Identify the potential of nonwoven fabrics with a flexible bonding point. (3 marks)
- (ii) Differentiate the bonding structure of two fabrics mention in the Q1(b)(i). (8 marks)
- (c) MORZ Sdn Bhd has produced a sample of thermally bonded fabrics for baby diapers purpose. The fabrics turn out to be a bit stiff and the water penetration is too slow. Predict the probability of the parameters that should be improved to increase the performance of the fabrics. (5 marks)
- Q2** (a) Explain the function of each finishing process below:
- (i) Washing
(ii) Coloration
(iii) Antimicrobials
(iv) Splitting
(v) Flocking
(vi) Water repellents (6 marks)
- (b) Differentiate between chemical finishing and mechanical finishing. (6 marks)
- (c) Diaper's manufacturer was having decreasing market demand in the past 3 months. The customers give feedbacks that the product design is too plain, less attractive and babies are having dermatitis. Plan suitable finishing treatment to produce hygienic and attractive diapers for the manufacturer. (8 marks)
- Q3** (a) Choose **FOUR (4)** test methods that can be applied to determine the pore size distribution for nonwoven fabrics. (4 marks)
- (b) Develop **FIVE (5)** appropriate nonwoven fabric properties should be considered in producing nonwoven geotextiles products. (10 marks)



- (c) Two new filters have been produced with different properties as shown in Table 1.

Table 1: Types of Filter and Properties

	Filter A	Filter B
Pore size (μm)	35	40
Fabric weight (gm/m^2)	150	120

Recommend suitable filter to be used as an air intake filter to protect compressor from dust, smoke and water. Give your justifications.

(6 marks)

- Q4** (a) Make a comparison between traditional medical textiles and nonwoven medical textiles.

(10 marks)

- (b) As a textile technologist, you are assigned to develop new baby wipes as one of the new products for your company. Plan a process involved starting from raw material selection, web formation method, web bonding method, treatment and finishing and the packaging section.

(10 marks)

- Q5** (a) Give **FIVE (5)** advantages of using nonwovens in agriculture sectors.

(5 marks)

- (b) The uses of nonwovens in automotive industry is continually growth due to the high speed production, low cost, recyclability and the ability to make composite materials. Discover nonwoven fabric innovation that has been made related to the automotive industry.

(10 marks)

- (c) Produce sustainable insulating nonwovens for roofing or wall, in order to promote green and sustainable technology in building and construction area.

(5 marks)

- END OF QUESTION -

