UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020

COURSE NAME	:	TECHNICAL TEXTILES
COURSE CODE	:	BNH 40503
PROGRAMME CODE	:	BNH
EXAMINATION DATE	:	DECEMBER 2019 / JANUARY 2020
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

TERBUKA

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

Q1   (a)   Technical Textiles are known for the function they perform.

       (i)   Define Technical Textiles.

(2 marks)

       (ii)   Classify the Technical Textiles based on their functionability.

(4 marks)

    (b)   (i)   Define geotextiles.

(2 marks)

       (ii)   Explain the suitability of Jute and Polypropylene fibres as geotextiles.

(4 marks)

       (iii)   Geotextiles help to improve the service life of roads. Justify this statement with examples.

(6 marks)

    (c)   (i)   Describe about defence textiles.

(3 marks)

       (ii)   Assess the functional requirement for defence textiles.

(4 marks)

Q2   (a)   (i)   Determine **THREE (3)** importance of Textile Reinforced Composite Materials (TRCM) in engineering materials applications.

(6 marks)

       (ii)   Evaluate the architecture of woven composite structure with relation to its mechanical behaviour.

(8 marks)

    (b)   (i)   Determine **FOUR (4)** characteristics of filter fabric.

(4 marks)

       (ii)   List **THREE (3)** basic reasons for finishing treatments for fabric that employed in liquid filtrations.

(3 marks)

       (iii)   Woven and needle felt were among the fabric structure for fabric filter. Distinguish the properties of these two different fabric constructions.

(4 marks)

Q3 (a) (i) Explain how flame-resistant fabrics are designed.

(3 marks)

(ii) Evaluate the common schematic structure of garments for protection against extreme cold weather. Include the **THREE (3)** basic important layer with its function in your evaluation.

(6 marks)

(iii) List the important considerations in designing chemical protective clothing.

(4 marks)

(b) (i) Determine **THREE (3)** properties of fibres suitable for medical textiles. List **THREE (3)** typical fibres used for medical products.

(6 marks)

(ii) Differentiate between implantable and non-implantable textile materials for medical application.

(6 marks)

Q4 (a) Analyse the required functions of this three different sportswear.
(i) Shirts for tennis player
(ii) Skiwear
(iii) Swimwear

(6 marks)

(b) Evaluate the requirements for sportswear in terms of heat transport performance and moisture transport performance.

(4 marks)

(c) Explain the criteria for smart textiles. Classify the functions of active and passive smart materials

(5 marks)

(d) Recommend modern components that can be added to fashionable clothing to make it more decorative and useful.

(4 marks)

(e) List the typical materials used for the production of the item listed below. Justify the reason for the materials selection.
(i) Airbags
(ii) Tyre cord
(iii) Seat belt

(6 marks)

-END OF QUESTIONS –

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