

THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF TEXTILE AND APPAREL TECHNOLOGY
 BACHELOR OF TECHNOLOGY HONOURS IN ENGINEERING/
 BACHELOR OF INDUSTRIAL STUDIES HONOURS
 TTX6233- TECHNICAL TEXTILES
 FINAL EXAMINATION- 2016/2017
 DURATION: 03 HOURS



Date: 15th November 2017

Time: 0930 - 1230 hrs

Total number of questions = 08

Number of questions to be answered = 06

Answer question one (Q1), which is compulsory and five (05) other questions

Question one (Q1) carries 25 marks and questions two (Q2) to eight (Q8) carry fifteen (15) marks each.

Compulsory Question

- (Q1) (a) Give two (02) types of natural fibres, which are widely used for technical textile applications. (02 marks)
- (b) State three (03) applications of polyester as a raw material in technical textiles. (03 marks)
- (c) State two (02) examples for fabric preforms. (02 marks)
- (d) Write down three (03) types of resins, which are widely used to produce textile composites. (03 marks)
- (e) Mention three (03) design considerations of geo-synthetics. (03 marks)
- (f) Write down three (03) manufacturing methods of laminated fabrics. (03 marks)
- (g) Give two (02) testing methods, which can be specifically used to evaluate heat protective clothing. (02 marks)
- (h) List three (03) important properties of a resin system. (03 marks)
- (i) What type of fibre is used to produce tyres for aircrafts? (01 mark)
- (j) Write down the three (03) major requirements of geo-textile reinforcement materials. (03 marks)

Answer any five (05) from the following seven (07) questions

- (Q2) Write short notes on the following:
- (a) Agricultural technical textiles (05 marks)
 - (b) Technical textiles for sports (05 marks)
 - (c) Technical textiles for building and construction (05 marks)
- (Q3) Biomedical textiles can be divided into five (05) sub sections. Giving suitable examples for each sub section, write a comprehensive note on biomedical textiles. (15 marks)
- (Q4) Using suitable diagrams, describe the two (02) methods of textile composite manufacture given below. State their advantages and disadvantages as well.
- (a) Resin Transfer Moulding (08 marks)
 - (b) Filament winding (07 marks)
- (Q5) (a) Describe the use of geo-textiles as road and pavement under-structures. (05 marks)
- (b) Discuss the advantages of using geo-textiles in unpaved roads. (05 marks)
 - (c) Explain the role of geo-textiles in wind erosion control. (05 marks)
- (Q6) (a) Describe the use of textiles in the construction of airbags in automobiles. (07 marks)
- (b) Discuss the advantages of using fibre reinforced composites in air craft construction. (08 marks)
- (Q7) (a) Describe two (02) suitable methods, which can be used to evaluate the effectiveness of chemical protective clothing. (08 marks)
- (b) Write a short note on the various methods, which can be used to produce fire resistant fibres/textiles. (07 marks)
- (Q8) (a) Explain the molecular structure of "Meta-aramids". (03 marks)
- (b) Write a short note on the applications of "Meta-aramids". (07 marks)
 - (c) Describe the spinning process of aramid fibres. (05 marks)