



THE OPEN UNIVERSITY OF SRI LANKA
 BACHELOR OF TECHNOLOGY/ INDUSTRIAL STUDIES
 FINAL EXAMINATION– 2011/2012
 TTX6233 – TECHNICAL TEXTILES
 DURATION – THREE HOURS

DATE: 27th FEBRUARY 2012

TIME: 0930 - 1230 HOURS

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) What do you understand by the term “technical textiles”? (02 marks)
- (b) For technical textiles, different other names/terms are also used in the textile field. State three (03) of them. (03 marks)
- (c) Write a short note on the basic functions of geotextiles. (03 marks)
- (d) Write down four (04) methods used in the production of laminated fabrics. (04 marks)
- (e) Briefly explain the term “textile preforms” with reference to technical Textiles. (03 marks)
- (f) State three (03) applications of textiles in passenger road vehicles. (03 marks)
- (g) Explain the importance of using comfortable interior décor in long haul road vehicles. (03 marks)
- (h) Write a short note on the properties of high performance polyethylene fibres (04 marks)

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

- (Q2) (a) Classify the technical textiles into twelve (12) segments and give two (02) applications for each segment. (08 marks)
- (b) Write a comprehensive note on the raw materials used for technical textiles (07 marks)
- (Q3) (a) State and briefly describe four (04) important properties of resin systems used in the textile composites. (08 marks)
- (b) Compare and contrast in all aspects the "thermoplastic resins" and "thermosetting resins", which are used for textile composites. (07 marks)
- (Q4) Describe given below two (02) methods of textile composite manufacturing. Give their advantages and disadvantages as well.
- (a) Wet Lay up method (08 marks)
- (b) Vacuum Bagging method (07 marks)
- (Q5) (a) Briefly describe four (04) different types of geosynthetics that are used in civil, geotechnical, environmental or structural engineering fields. (08 marks)
- (b) Describe the role of geotextiles in wind erosion control. Give the advantages of using geotextiles for the wind erosion control. (07 marks)
- (Q6) Write short notes on three (03) of the following related to automotive textiles.
- (a) Use of high performance fibers in tyres. (05 marks)
- (b) Textile reinforced composites in aircraft manufacturing. (05 marks)
- (c) New developments in airbag manufacture. (05 marks)
- (d) Properties and characteristics of textiles used for sails and ropes in marine applications. (05 marks)
- (Q7) (a) Explain the mechanism of heat transfer through the clothing system to the human body. (08 marks)

(b) Discuss the different textile materials that have been developed to protect humans from toxic fumes and gases. (07 marks)

(Q8) (a) Explain the process of carbon fibre manufacture. (08 marks)

(b) Briefly discuss the characteristics/properties of glass fibres. (07 marks)