

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- 2015/2016
 DURATION: 03 HOURS



Date: 23rd November 2016

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) other common names used for technical textiles. (02 marks)
- (b) State three (03) important properties of a resin system, which is necessary for textile composite applications. (03 marks)
- (c) State (02) examples for three dimensional woven preforms. (02 marks)
- (d) Write down three (03) methods of making laminated fabrics. (03 marks)
- (e) Give three (03) main requirements of geo-synthetic reinforcement materials. (03 marks)
- (f) Give the melting temperatures of polyester and high density polyethylene fibres/ filaments in Celsius. (02 marks)
- (g) Write down two (02) major functions of geo-synthetics. (02 marks)
- (h) List the two (02) important tests, which are used to determine the chemical resistance of fabrics. (03 marks)
- (i) What is the first textile fibre type used in tyre manufacturing? (01 mark)
- (j) Write down three (03) major methods, which are used to impart flame resistance to textiles. (03 marks)
- (k) State the main objective of measuring the limited oxygen index of textiles. (01 mark)

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

- (Q2) (a) Describe the use of natural fibres "Cair", "Jute" and "Flax" as raw materials for technical textile applications. (09 marks)
- (b) Write a short note on the use of the nylon fibres/filaments in technical textile applications. (06 marks)
- (Q3) (a) Write a comprehensive note on the properties/characteristics of "epoxy resins". (08 marks)
- (b) Write a short note on different types of textile fabric preforms, which can be used to prepare textile composites. (07 marks)
- (Q4) Using suitable diagrams, describe the two (02) methods of textile composite manufacturing given below. Give their advantages and disadvantages as well.
- (a) Vacuum bagging (08 marks)
- (b) Wet Lay-up (07 marks)
- (Q5) (a) Giving structures, properties/characteristics and applications, describe the use of geo-membranes, geo-grids, geo-nets, geo-meshes and geo-cells in engineering fields. (10 marks)
- (b) Write a short note on the design considerations of geo-synthetics. (05 marks)
- (Q6) (a) Describe the use of various types of textiles in the construction of tyres. (07 marks)
- (b) Explain the properties/characteristics of textile materials used as tarpaulins in heavy vehicles. (08 marks)
- (Q7) (a) Briefly discuss the properties/ characteristics of the textiles used for thermal protective clothing. (06 marks)
- (b) Write a short note on the textile materials, which can be used against toxic fumes and gases. (09 marks)
- (Q8) (a) Explain the molecular structure of "Para aramids". (03 marks)
- (b) Describe the general features of "Para aramids". (06 marks)
- (c) Write a short note on the applications of "Para aramids". (06 marks)