Uva Wellassa University of Sri Lanka

Faculty of Science and Technology

Science and Technology Degree Programme

3rd Year 2nd Semester Examination – August/September 2014

SCT 446-2 Composites and Biomaterials

Uva Wellassa University

This question paper consists of Part-A and Part-B

Answer all the questions in Part-A in the space provided

Answer all questions in Part-B using a separate booklet

Time allocation: Two (02) hours

Total marks: 100

Part B

1) a) Define the terms 'blends', 'alloys' and 'composites.'

(Marks 06)

b) Briefly describe the host and the guest arrangement of a selected bio-composite.

(Marks 07)

c) Explain why carbon fibers are stronger than graphite fibers.

(Marks 05)

d) Discuss how the distribution of particulate reinforcement within the matrix affects the final mechanical properties of a composite.

(Marks 07)

2) a) Write the chemical reaction that takes place in manufacturing of glass fiber reinforced unsaturated polyester (Fiberglass).

(Marks 08)

b) Write a brief account on metal matrix composites, their properties and applications giving examples.

(Marks 07)

c) You are asked to manufacture cylindrical pipes, each having 20 feet of length and 2 feet of diameter, using a thermoset resin and carbon fibers. The pipes are supposed to be used in an underground water supply line. Describe the manufacturing process of the pipes and its advantages and disadvantages.

(Marks 10)