THE OPEN UNIVERSITY OF SRI LANKA
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
B.Sc. DEGREE PROGRAMME – 2013/2014
CPU2140: SYSTEM ANALYSIS AND SOFTWARE ENGINEERING
NO BOOK TEST - 2
DURATION: **ONE HOUR ONLY (1HR)**

Date : 20th September 2014 **Time: 11.00am – 12.00noon**

Answer ALL Questions.

Q1).

I. Classify the following UML diagram types into *static* or *dynamic* diagram types:
   a. Class diagram
   b. State diagram
   c. Sequence diagram
   d. Object diagram
   e. Activity diagram

II. Assume you have been assigned to a project to develop a browser based training system to help people prepare for a certification exam. Its functionality is given below.

A user can request a quiz for the system. The system picks a set of questions from its database, and composes them together to make a quiz. It rates the user's answers and gives hints if the user requests it. In addition to users they also have tutors who provide questions and hints. And also examiners who must certify questions to make sure they are not too small. Make a use case diagram to model this system.

III. Draw classes representing each of the following.
   a. To represent traffic lights with attributes to record which colors are currently illuminated.
   b. To represent a counter with an operation to set or reset the counter to zero, to increase and decrement the value stored by a specified amount and to return the current value.
   c. To represent a switch which can be turned on or off.

IV. Customers place orders for product items. An order is followed by some number of shipments. A shipment has line items that relate back to the order line items. Each shipment line item takes some or all of the quantity of product designated by the order line item.

Identify the *classes*, its *attributes*, *operations* and *relationships* and construct the *class diagram* for the case study given above.

Q2).

I. Discuss the difficulties and problems that arise in component based software engineering.

II. Explain the RAD approach and how it differs from traditional approaches of information systems development.