



**Date: 22<sup>nd</sup> August 2015**

**Time: 10.30am – 11.30am**

**Answer ALL Questions.**

1.
  - a. Name four basic relationships defined in UML?
  - b. Identify the most suitable relationship type among them and draw the class diagram (sketch) for each relationship description given below.
    - i. Mail contains a subject, a body and attachments
    - ii. A drawing object is a text, a geometrical object, or a group
    - iii. Monitors and scanners are input/output devices
    - iv. Object classes may have several attributes
    - v. The car has an accelerator, a brake and wheels as parts
    - vi. Windows is composed of lot of frames
    - vii. An account is either type of saving or type of current

2. Consider the following description of a soft drink vending machine.

A soft drink vending machine accepts coins for a variety of products. When the amount of money deposited into the machine is equal to or greater than the price of any of its available products, the respective product selection buttons will be enabled for the user to make the selection. After the user has made a valid selection, the machine will dispense the soft drink, together with the change (if applicable).

Draw the **activity diagram** for this vending machine.

3. Consider the following description of an online theater booking system from the perspective of a user who is going to use that online system.
  - User should be a registered member.
  - User can book any number of tickets on availability.
  - User should be able to search for the availability of tickets on selecting a particular movie.
  - Once a user books the ticket a token number will be generated, so that on providing this token he will be able to collect tickets before a show from theater premises.
  - User can cancel all or some seats of the ticket by providing the token number before 1 Hr of scheduled time for that movie.

Draw the **use case diagram** for this online theater booking system.

4. Name the two phases of system testing.
5. List the main steps involved in system implementation.
6. What are the four types of software maintenance?
7. List three disadvantages of component based software engineering.

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