(REVISED COURSE)

(3 Hours)   [Total Marks : 100

N.B.(1) Question No. **1** is **compulsory**.
   (2) Attempt any **four** questions out of remaining **six** questions.
   (3) Make **suitable assumptions** wherever **necessary** and state them.

1. As a developer, transform the following customer's mission statement in to a complete, **20**
unambiguous description of the system using. Use case diagram and class diagram.
Prime Car Rental company mission statement—
   Since we automated the tracking of cars at our stores—Using bar codes, counter top
terminals and laser readers.—We have seen many benefits the productivity of our
rental assistants has increased 20%, car rarely go missing and our customer base has
grown strongly.
   The management feels that the Internet offers further existing opportunities for increasing
efficiency and reducing costs. For examples rather than printing catalogs of available
cars, we could make the catalog available to every Internet surfer for browsing on-line.
For privileged customers, we could provide extra services, such as reservations, at
the click of a button. Our target saving in this area is a reduction of 15% in the cost of
running each store.
   Within two years, using the full power of e-commerce, we aim to offer all our services
via web browser, with delivery and pick-up at the customer's home, thus achieving our
ultimate goal of the virtual rental company, with minimum running costs relative to
walk-in stores.

2. Explain following terms using scenario described in Question **No. 1**.   **20**
   (a) Association
   (b) Aggregation
   (c) Multiplicity
   (d) Generalization.

3. (a) Draw a sequence diagram for the following scenario-   **10**
   To add/purchase books in a library :
   Students request for a particular title. Librarian takes help of inventory to find out if
sufficient books copies are available. If not, librarian consult a professor for approval of
purchase of additional copies for that titel. If approved, librarian orders supplier for book
copies. On arrival of book copies the students and professor are notified. While books
are being added, student can/may/will issue other books if needed. Inventory is updated
on arrival of book copies and payment is issued against bill by librarian.
   (b) State and explain various steps in 00 design process.   **10**

4. (a) Explain object oriented metrics and testing.   **10**
   (b) Draw activity diagram for the Scenario described in Question **3.(a)**   **10**

5. (a) Name and explain in short five Borch diagrams.   **10**
   (b) How deployment diagrams are useful in modeling a fully distributed system ?   **10**

6. (a) How class diagrams are useful in modelling logical database schema ? Explain with   **10**
suitable example.
   (b) Explain different types of coupling and cohesion.   **10**

7. (a) What is the difference between include and extends ?   **10**
   (b) What are swim lanes ? Explain with example.   **10**

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