Pokhara University

|  |  |  |
| --- | --- | --- |
| Level: Bachelor | Semester: Fall | Year : 2015 |
| Programme: BE | | Full Marks: 100 |
| Course: Object Oriented Design and Modelling Through UML | | Pass Marks: 45 |
| Time : 3hrs. |

|  |
| --- |
| *Candidates are required to give their answers in their own words as far as practicable.* |
| *The figures in the margin indicate full marks.* |
| Attempt all the questions. |

|  |  |  |
| --- | --- | --- |
|  | You are developing a system to handle checkout duties at a library. Library members may checkout books and videos from the library. The system must keep track of which books and videos each member currently has checked out.  Each book and video has a unique item number that is used by the system to index that book or video, a clerk may check the status of a book (in the library, checked out, checked out and overdue) by supplying the item number. A clerk may also check either on a book by supplying the title and author or on a video by supplying only the title.  Each library member has a library card that includes his or her membership number and the item number of the book or videos (in total), and if the borrower has no overdue books or videos, the book or video is loaned to the borrower. The conditions of the loan include a due date (two weeks for books and three days for videotapes.).  For the above case study:   1. List use cases and prepare use case diagram. 2. Identify conceptual classes, and prepare a domain model. 3. Create a sequence diagram when a library member wants to borrow a book or videotape. | 15 |
|  | 1. Explain workflows of iterative software development model. 2. What do you mean by object oriented development cycle? Explain with an example. | 7  8 |
|  | 1. What is a contract? Explain different parts of the contract with suitable example. How do the contracts help in devising collaboration diagram? 2. What is attribute visibility how it is different from parameter visibility, explain with example. | 8  7 |
|  | 1. Define conceptual class. Explain the role of domain modelling with an example 2. Explain the use of state chart diagram? Show mutual exclusive condition in Collaboration diagram with example | 8  7 |
|  | 1. How DCD is different from Domain models? Explain method name issues in DCD. 2. Define GRASP. Explain the purpose of Creator pattern with an example? | 7  8 |
|  | 1. Explain steps of mapping design to code with an example. 2. Convert the DCD to equivalent source code (java/c++). | 8  7 |
|  | Write short notes on: (**Any two**)   1. Sequence diagram 2. High coupling pattern 3. UML multiple perspectives | 2×5 |