

# POKHARA UNIVERSITY

Level: Bachelor

Semester – Fall

Year : 2016

Program : BE

Full Marks: 100

Course: Object Oriented Software Engineering

Time : 3 hrs.

*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.***

1. a. What is software engineering? Define the characteristics of system software? 6
- b. Explain how both the waterfall model of the software process and prototyping model can be accommodated in the spiral process model. 9
2. a. A software project started on May 2011 was supposed to be completed by March 2014. But the progress review at the end of June 2013 shows that only 20% of the tasks have been completed and the major reason in delay of the project was the people factor. Justify how, people factor affects the software development process. 8
- b. What is risk in a software? How do you identify risk in software engineering? Explain risk mitigation, monitoring and management. 7
3. a. How formal technical review is taken as a measure to maintain the quality of a software project? Explain. 7
- b. What are Software Quality Controls and Software Quality Assurance? How can we produce high quality software products? 8
4. a. Discuss the significance of unit testing and integration testing in object-oriented life cycle for system development. 7
- b. Why system modelling is essential for software development? What are the differences between data and behaviour modelling? 8
5. a. Discuss the notations of UML diagram in detail. 6
- b. A simple system is to be developed to support the management of exercises completed by students taking a course. Students first meet with the course tutor to register for a course, and then during the course they submit a number of exercises. Every course has a certain deadline assigned by the course tutor. Tutors can allow an exercise to be submitted late. At any point, a student can find out from the system 9

the marks they have received for any exercises already completed. A student shall also be able to view any comments made by the tutor on a certain exercise. The course tutor can also enter a mark for an exercise, and print out a summary of the marks gained by all students on course.

Identify Classes and draw a class diagram to model an efficient solution for the problem.

6. a. A customer presents a cheque to a clerk. The clerk checks the ledger 9  
containing all account numbers and makes sure whether the account  
number in the cheque is valid, whether adequate balance is there in the  
account to pay the cheque, and whether the signature is authentic.  
Having done these, the clerk gives the customer a token. The clerk  
also debits customer's account by the amount specified on the cheque.  
If cash cannot be paid due to an error in the cheque, the cheque is  
returned. The token number is written on the top of the cheque and it  
is passed on to the cashier. The cashier calls out the token number,  
takes the customer's signature, pays cash, enters cash paid in a ledger  
called day book, and file the cheque.
1. Derive Use Cases from the above scenario and model them into a Use  
Case Diagram.
- b. What do you mean by object oriented design model? Discuss 6  
concurrency and subsystem allocation.
7. *Write short note on (Any Two)* 2x5
- Agile Process
  - Data Modelling
  - Cyclomatic Complexity Testing Method