POKHARA UNIVERSITY

Level: Bachelor | Semester: Fall | Year : 2014
Programme: BE | Full Marks: 100
Course: Object Oriented Software Engineering | 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.

1. a) A Pharmaceutical Company wants to develop an Inventory Control System for its internal use. The requirements are well understood and scope is well constrained. However the project is required to be delivered within short period of time (as soon as possible). Propose a life cycle model for this scenario and provide reason(s) for justification of your answer. 8

   b) Describe the relationship and role of software engineering over other computer science areas. 7

2. a) A software project started on March 2013 was supposed to be completed by May 2014. But the progress review at the end of March 2014 shows that only 20% of the tasks have been completed and the major reason in delay of the project was the people factor. Explain briefly the possible reasons that the people factor affects the software development process. 7

   b) Define Requirements Traceability and explain why it is relevant to the maintenance of software systems. 8

3. a) What are software risks? Briefly describe the different types of software risks. 7

   b) Suppose a Hotel is going to design an online hotel booking system for its guests. There are following requirements: 8

      - Cost-effectiveness
      - Reliability
      - User friendliness

   Suggest priority of the above mentioned representative software qualities in most required to least required order. Also give appropriate reasons in favor of your answer.

4. a) Obtain 1-level DFD for the following system of enchasing cheque in a bank. 8

A customer presents a cheque to a clerk. The clerk checks the ledger 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.

b) How would you define Verification and Validation? Discuss briefly on White Box Test versus Black Box Test. 7

5. a) A health clinic provides medical services to patients in a small town. Five doctors and three nurses work at the clinic; they consult with patients, prescribe medicines and carry out minor medical treatments. Patients with more serious conditions are referred to specialists at the local hospital. A medical information system is being designed for use in the clinic. The system will manage information about employees (doctors, nurses and administrator), patients and their contact details, appointments and consultations, medicines and prescriptions, treatments given, and referrals. 10

Produce a UML class diagram for use in constructing the system using an object oriented programming language. Your diagram must include all applicable classes and relationships. There is no need to show the attributes and operations for each class.

b) Describe the UML based CASE tools. 5

6. a) Discuss briefly on how Use case and CRC aids in object oriented analysis. 8

b) Describe the concurrency and subsystem allocation for object oriented design. 7

7. Write short notes on: **(Any two)** 2×5

a) Polymorphism, Inheritance and Abstraction in OO concept

b) Outsourcing

c) CRC modeling.