

POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2021
Programme: BE Full Marks: 100
Course: Object Oriented Design and Modelling Pass Marks: 45
through UML 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) How is the Unified Process different than other traditional processes like waterfall model? Discuss with regard to the distinctive features of Unified Process. 8
b) "UML is a language for specializing, visualizing, constructing and documenting the artifacts of the system." Justify this statement explaining the significance of UML in OO/AD. 7
2. a) What are use cases and how they can be used for identifying and recording system requirement? How would you differentiate between include and extend relationship between use cases. 8
b) Why do we need Conceptual Classes? Discuss with an example. 7
3. a) "Contracts in UML provides a more detailed description of system behavior when use cases are not sufficient". Explain this statement with an example. 5
b) **LEAVE APPLICATION MANAGEMENT SYSTEM:** 10
SYSTEM MODULES

Register:

One user has to register on this interface with its actual data to be filled and applied in the same interface, then pressed enter to be saved in the database. Further, move to log in.

Login:

The user inputs its secure user id and password and enters the system. User can login multiple times as many times he wants

Leave apply:

Here is the module for applying for leave to the interface. One has to enter his details about the leave like reason of the leave.

Choose the dates of the leave. Depending upon the user's account and policy of the company or premise the cost of the leave is calculated and shown to the interface.

Live review:

After successful application of the leave application is will come under scrutiny done by an admin. According to his need, he will review it and take necessary action in next module.

Leave approval:

Here admin approves the leave or not is reflected by admin to the users. Here all the real-time updates will be shown to the users. Users can see only their own leave request there.

Log out:

In the end, the user can log out the system to release the resources held for the purpose of anything else.

- i. **Identify the use cases and draw the use case diagram for the system** ..
- ii. **Draw SSD for the scenario of leave application.**
4. a) Discuss the importance of using Patterns in OOD. Provide an example scenario for applying high cohesion pattern. 8
b) Why are interaction diagram developed during OOD? Differentiate between Sequence and Collaboration diagrams. 7
5. A hospital's ICU department uses various devices during the treatment of patients. Each patient is monitored to measures factors such as temperature, heart rate, and blood pressure. The device regularly reads the values and record them. For each patient, medical staff also specifies safe ranges for each factor. If a factor falls outside a patient's safe range, or if a device fails, the nurses' station is notified. 15
Develop a Domain model, Sequence diagrams and Class diagram from these details.
6. a) Explain with an example, how class diagram can be used to generate code. 7
b) What are exceptions and errors? Explain the ways for handling them. 8
7. Write short notes on: (**Any two**) 2×5
a) Visibility
b) Test-First Programming
c) Identifying Conceptual classes