

TILAK MAHARASHTRA VIDYAPEETH, PUNE
BACHELOR OF COMPUTER APPLICATIONS (B.C.A.)(044)/
BACHELOR OF COMPUTER APPLICATIONS (CYBER SECURITY - 464) /
BACHELOR OF SCIENCE (CYBER SECURITY-760)/
BACHELOR OF SCIENCE (COMPUTER APPLICATIONS - 750)
EXAMINATION: MAY - 2026
SEMESTER – IV
Sub : Unified Modeling Language (BCA23-404/BCAC23-404/BSC24-404/BSCC24-404)

Date : 30/05/2026**Total Marks : 60****Time: 2.00 pm to 4.30 pm**

Instructions:

1. All questions are compulsory unless and otherwise stated.
 2. Bold figures to the right of every question are the maximum marks for that question.
 3. Candidates are advised to attempt questions in order.
 4. Answers written illegibly are likely to be marked zero.
 5. Use of scientific calculators, Log tables, Mollier Charts is allowed.
 6. Draw neat and labelled diagrams wherever necessary.
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Q.1. Case Study**(20)**

The Hospital Management System is designed to manage hospital operations such as patient registration, appointment booking, doctor management, billing, and pharmacy services. The system should allow patients to register and book appointments with doctors. Doctors can access patient records, prescribe medicines, and update treatment details. Receptionists handle admissions and billing, while the pharmacy maintains medicine inventory. The system should generate reports for patient visits, payments, and medicine usage. It should also improve communication between hospital departments. The main goal is to improve healthcare services, reduce paperwork, and provide accurate and quick access to patient information.

Draw Use case diagram, State chart diagram, Class diagram, Sequence diagram for above problem statement.

Q.2. Solve (Any two)**(30)**

1. Draw Class diagram , State chart diagram and Sequence diagram for E- Learning system
2. Draw Activity diagram, Use case diagram and Class diagram for Social Media Application
3. What is model? What is importance of modelling? Give four principles of modeling.

Q.3. Answer the following in 2-3 lines (Solve any 5)**(10)**

1. What is composition and aggregation?
 2. What is the difference between a flow chart and an activity diagram?
 3. What is Fork and join in Activity Diagram?
 4. What is include and extend relationship in uml?
 5. Design use case diagram for sales management system?
 6. What is an event and how it influences the states of an object?
 7. Define: Object and Encapsulation.
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