



Prahladrai Dalmia Lions College Commerce & Economics
(Government Aided & Affiliated to University of Mumbai & AICTE, New Delhi)
- **NAAC Re-accredited with 'A' Grade (III Cycle) ISO 21001:2018 Certified**
University of Mumbai Recognised Research Centre in Accountancy, Commerce & Business Economics
A Government Approved Hindi Linguistic Minority Institute

ATKT SEMESTE V

Internal Examination Oct., 2026

BSc.(Information Technology), NEP BATCH DATE - 6/10/2026

INSTRUCTIONS FOR THE STUDENTS HAVING ATKT IN INTERNALS:

1. **Date of Submission of the Projects- 16th October, 2026 (Timings 11:30 am sharp)**
2. **Reporting time for students: at least 10 minutes before the mentioned time. Venue: 2nd floor staff room). Please meet Dr. Rupali Mishra.**
3. **Students have to be present in person for the submission.**
4. **Submission of projects to be done on proper A4 size paper, handwritten by the candidate himself only. The Front page should contain details of Roll no, Name of the student, Semester, Subject.**
5. **Print out of the questions uploaded should be attached along with the project. Students should also enclose a photocopy of the ATKT fee paid receipt along with each of his projects.**
6. **On the date of submission there will be a viva voce on the given questions/topics.**
7. **If the student fails to present himself on the given date and time he will be marked ABSENT for the said subject.**
8. **Any Submissions after the above mentioned date and time will not be accepted and entertained under any circumstances.**
9. **Note: If students have any discrepancies in the below mentioned questions or any queries related to the same need to meet Dr. Rupali Mishra on or before 09 October, 2026 (by 11 am).**

Dr. Rupali Mishra

CA. Durgesh Kenkre

Ms. Subhashini Naikar

Prof. (Dr.) D. N. Ganjewar

(Coordinator - BSc.IT)

Exam Convener

Vice- Principal, SFC

(Principal)

TYBSc.I.T. SEMESTER IV ATKT INTERNAL PROJECT QUESTIONS

NOTE: Students shall attempt any five questions out of the same as per their subjects allocated and in which they have ATKT only in internals

358 VISHWAKARMA SATYENDRA RAMMILAN

SOF PROJ.MGMT - Internal

1. What is a project? Differentiate software projects from other types of projects. Explain the activities covered by software project management.
2. Explain the project charter, stakeholders and the business case. How do you decide whether a project has succeeded or failed?
3. Explain the cost-benefit evaluation techniques (NPV, IRR and payback period) used for project evaluation.
4. Explain the Step Wise project planning framework, step by step.
5. Compare the Waterfall model, the Spiral model and Incremental delivery. How do you select the most appropriate process model?
6. Explain agile methods with reference to Extreme Programming (XP) and Scrum.
7. Explain software effort estimation techniques: bottom-up, top-down, expert judgement and estimating by analogy. Why do over- and under-estimates cause problems?
8. Explain Albrecht Function Point Analysis and the COCOMO II model.
9. Explain network planning: the forward pass, backward pass, critical path and activity float. Draw a network for a small project and identify its critical path.
10. Explain risk management: risk identification, assessment and planning. Describe Boehm's top 10 risks and the PERT technique.

INTERNET OF THINGS

1. Explain the Internet of Things and its technology. Give examples of enchanted objects.
2. Explain the design principles for connected devices: calm and ambient technology, privacy, graceful degradation and affordances.
3. Explain the TCP/IP protocol suite, IP addressing (static, dynamic and IPv6) and the role of DNS.
4. Compare TCP and UDP. Explain ports and the application layer protocols HTTP and HTTPS.
5. Explain the prototyping considerations: sketching, costs versus ease, open versus closed source, and moving from prototype to production.
6. Compare Arduino and Raspberry Pi. Explain sensors, actuators and microcontrollers.
7. Explain physical design prototyping using laser cutting, 3D printing and CNC milling.
8. Explain prototyping online components: using APIs, mashing up APIs, polling, Comet, MQTT, XMPP and CoAP.
9. Explain techniques for writing embedded code: memory management, types of memory, performance and battery life, and debugging.
10. Explain the Business Model Canvas and the ways to fund an IoT startup. Also explain the privacy and environmental ethics of IoT.

ADV WEB PROG - Internal

1. Explain the .NET Framework: the Common Language Runtime, the class library and the .NET languages.
2. Explain value types and reference types in C#. What are namespaces and assemblies?
3. Explain the ASP.NET code-behind model and the anatomy of an ASP.NET application.
4. Explain list controls and table controls, with the AutoPostBack property.
5. Explain the validation controls in ASP.NET, with examples.
6. Explain the Calendar and AdRotator controls. Describe site maps and the TreeView and Menu navigation controls.
7. Explain exception handling and page tracing in ASP.NET. How do you throw your own exceptions?
8. Compare the state management options: view state, cookies, session state and application state.
9. Explain ADO.NET: the data provider model, direct data access and disconnected data access. Explain the DataSet.
10. Explain the GridView control (editing, sorting, paging and templates). Also explain ASP.NET AJAX partial refreshes and forms authentication.

ADV WEB PROG - Practical

1. Write a C# application that accepts four integers and displays their product. Write another that demonstrates string operations.
2. Write a C# application that accepts student details (ID, name, course, date of birth) and displays them. Add programs for the Fibonacci series, prime test and number reversal.
3. Write a C# program to demonstrate function overloading, constructor overloading and inheritance.
4. Write a C# program to demonstrate interfaces, delegates and events, and exception handling.
5. Create a web page with server controls and demonstrate the AutoPostBack property. Create another using the Calendar control to display vacations and the difference between two dates.
6. Create a registration form that uses the various validation controls.
7. Demonstrate the AdRotator control and User Controls. Create a website with a Site Map and navigation controls.
8. Create a web application with a Master Page, Styles and Themes. Create another that demonstrates the states of ASP.NET pages.
9. Create a web application that inserts and deletes records from a database using ExecuteNonQuery, and display records bound to a DropDownList.
10. Create a web application using a GridView with paging, a button column and templates. Create another that reads and writes XML.

ARTIFICIAL INTELLIGENCE - Internal

1. What is AI? Explain the foundations of AI and the state of the art today.
2. Explain intelligent agents: agents and environments, the nature of environments and the structure of agents.
3. Explain uninformed search strategies (BFS, DFS and uniform-cost search), with their properties.
4. Explain informed search: greedy best-first search and A*. What are heuristic functions?
5. Explain local search algorithms: hill climbing, simulated annealing and genetic algorithms.
6. Explain adversarial search: minimax and alpha-beta pruning, with an example.
7. Explain knowledge-based agents and the Wumpus world. Explain propositional logic and theorem

proving.

8. Explain the syntax and semantics of first-order logic. How is knowledge engineering done in it?
9. Explain unification, forward chaining, backward chaining and resolution in first-order logic.
10. Explain classical planning: planning as state space search and planning graphs. Explain categories and objects in knowledge representation.

ARTIFICIAL INTELLIGENCE - Practical

1. Write a program to implement depth-first search and breadth-first search.
2. Write a program to simulate the N-Queen problem and to solve the Tower of Hanoi.
3. Write a program to implement alpha-beta search and the hill climbing algorithm.
4. Write a program to implement the A* algorithm and the AO* algorithm.
5. Write a program to solve the water jug problem. Simulate tic-tac-toe using the minimax algorithm.
6. Write a program to solve the Missionaries and Cannibals problem.
7. Write a program to shuffle a deck of cards and solve the Traveling Salesman Problem.
8. Solve the Block World problem and a constraint satisfaction problem.
9. Derive expressions based on the associative law and the distributive law.
10. Write a program that derives a predicate (for example, "Sachin is batsman, batsman is cricketer, so Sachin is cricketer"). Write another with male, female and parent predicates and the family relation rules (father, mother, uncle, cousin and so on).

Project Dissertation - Practical

Note : Bring Project Dissertation document for viva voce.

ENTERPRISE JAVA - Internal

1. What is an enterprise application? Explain the Java EE architecture, with its server and containers.
2. Explain the Servlet life cycle and the Servlet API. Write a simple welcome servlet, using annotations instead of a deployment descriptor.
3. Explain JDBC and its architecture. Describe the steps to access a database from a servlet.
4. Explain the RequestDispatcher interface and its methods (**forward** and **include**), with an application.
5. What are cookies? Explain their kinds and how a servlet creates them. Explain session tracking using the Servlet API.
6. Explain how files are uploaded and downloaded in servlets. What is non-blocking I/O?
7. What are Java Server Pages? Explain the JSP life cycle. Compare JSP with servlets.
8. Explain the JSP action elements (include, forward, param and useBean) and the JSP implicit objects.
9. What is JSTL? What problems with scriptlet tags does it fix? Explain the Unified Expression Language.
10. Explain Enterprise JavaBeans: the types of beans (stateful, stateless and singleton session beans, and message-driven beans) and the bean life cycle. Also explain JNDI, JPA and the architecture of Hibernate.

ENTERPRISE JAVA - Practical

1. Write a servlet for a simple calculator. Write another for a login page that shows "Hello <username>" on success and "login failed" otherwise.
2. Write a registration servlet that accepts username, password, email and country from an HTML form and stores them in a database using JDBC.
3. Using the RequestDispatcher, write a servlet that forwards the user to a welcome servlet if the password entered is "Servlet", and otherwise displays an error on index.html.
4. Write a servlet that uses cookies to count the number of times a user visits it. Write another that demonstrates session creation and destruction, and checks whether it is the user's first visit.
5. Write a servlet application to upload and download a file. Write another to demonstrate non-blocking read.
6. Write a JSP application that passes values from one page to another with validation (name, age, hobbies, email and gender). Write another that displays values from the intrinsic objects.
7. Write a registration and login JSP application that authenticates the user through JDBC. Write a JSP page that updates an employee table by employee number.
8. Write JSP pages that demonstrate Expression Language and JSTL.
9. Develop a currency converter using EJB, and a shopping cart using a stateful session bean. Write a servlet hit counter using a singleton session bean.
10. Develop a JPA or Hibernate application that stores and retrieves employee or book details in MySQL. Also write a Hibernate one-to-one mapping using annotations.

306 DAYAMA PRAMOD KUMAR NAVAL KISHOR

Project Dissertation

Note : Bring Project Dissertation document for viva voce.