PRAHLADRAI DALMIA LIONS COLLEGE
OF COMMERCE & ECONOMICS
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# NOTICE

**Date: 26/03/2024**

## B.Sc. (Information Technology)

## ATKT Internal/Practical Examination April' 2024
## Semester V

**INSTRUCTIONS FOR THE STUDENTS HAVING ATKT IN INTERNALS / PRACTICALS**

1. The viva voce will be conducted offline.
2. Date of Submission of the Project 2nd April, 2024 at 11.00 A.M. in the computer lab.
3. Students must write their Internal/practical ATKT project in their own handwriting on A4 size foolscap paper. On top of every page a student has to write his/her Complete Name, Program (Dept.), Semester, Roll no.,Class and Contact No.
4. Student has to attach a photocopy of questions allotted to him/her along with his answers.
5. Students have to attach an ATKT fee payment receipt along with his/her project.
6. On the date of submission, there will be a viva voce for which the student has to present himself/herself, failing which he/she will be marked absent.
7. Submissions after the above mentioned date and time will not be accepted and entertained under any circumstances.

Note: For any query mail to: bscit@dalmialionscollege.ac.in

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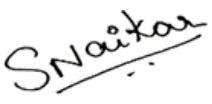
|  |  |  |  |
| **Ms. Rupali Mishra** | **CA. Durgesh Kenkre** | **Ms. Subhashini Naikar** | **Prof. (Dr.) D. N. Ganjewar** |
| **(Coordinator - BSc IT)** | **Exam Convener** | **Vice- Principal, SFC** | **(Principal)** |

**DI/R-IPS/EXAM/00**

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## Semester V (Internal Exam)

### SUBJECT : SOFTWARE PROJECT MANAGEMENT

**PANDEY JAY HAMENDRA**

1. Explain the significance of project evaluation within the context of software project management. Discuss how cost–benefit evaluation techniques and risk evaluation contribute to the decision-making process regarding the continuation or termination of a project. Provide an example of how these evaluations might influence project portfolio management.
2. Describe the stepwise project planning approach in software project management. Highlight the importance of identifying project scope and objectives in the early stages of planning and how this impacts the allocation of resources and estimation of effort for activities throughout the project lifecycle.
3. Compare and contrast the Waterfall Model and Agile Methods in software project development. Discuss the circumstances under which each model might be more appropriate and how each approach addresses the structure versus speed of delivery in project management.
4. Outline the process of risk management in software projects. Explain the steps involved in identifying, assessing, and planning for risks, and discuss how evaluating risks to the schedule can help in formulating effective countermeasures. Reference Boehm's Top 10 Risks as part of your explanation.
5. Discuss the role of software quality in project planning and execution. Explain how defining software quality and employing quality models like ISO 9126 contribute to both product and process improvements. Describe the relationship between software testing, reliability, and the overall quality management system in ensuring the success of a software project.

### SUBJECT : INTERNET OF THINGS

**TIWARI PRAFUL JITENDRA**

6. Explain the concept of The Internet of Things (IoT) and describe how Enchanted Objects illustrate the integration of IoT into everyday life. Provide two examples of enchanted objects and their impact on users.
7. Discuss the principle of Calm and Ambient Technology in the context of IoT. How does it influence the design of connected devices to enhance user experience without overwhelming them?
8. Compare and contrast the roles of IP addresses and MAC addresses in IoT connectivity. Why is it crucial for devices in the Internet of Things to have both?
9. Explain the significance of choosing between open source and closed source platforms when prototyping IoT devices. Provide an example of a scenario where an open source platform would be preferred over a closed source platform, and why.
10. Discuss the ethical considerations surrounding privacy and data control in the Internet of Things. How should IoT developers address these concerns in their projects to ensure user trust and compliance with legal standards?

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## SUBJECT : ADVANCED WEB PROGRAMMING

**TIWARI PRAFUL JITENDRA**

1. Explain how the .NET Framework facilitates the development of applications across different programming languages such as C# and VB. Discuss the role of the Common Language Runtime (CLR) in ensuring interoperability and security within this multi-language environment.
2. In the context of C#, describe the significance of Object-Based Manipulation over traditional procedural programming. Provide an example where Object-Based Manipulation offers a clear advantage in software development.
3. Discuss the difference between Value Types and Reference Types in .NET, including their storage mechanisms in memory. How does this distinction affect memory management and performance in a .NET application?
4. Describe the process and importance of Exception Handling in ASP.NET applications. How does proper Exception Handling improve the reliability and user experience of a web application? Provide an example of handling a specific ARexception in ASP.NET.
5. Compare and contrast Forms Authentication and Windows Authentication in ASP.NET. Under what circumstances might a developer choose one over the other? Explain the benefits and limitations of each method in the context of securing an ASP.NET application.

**SHARMA CHIRAG SUNIL**

1. Detail the process and benefits of using the Code-Behind model in ASP.NET Web Forms. How does separating the UI from business logic in this model enhance the development and maintenance of web applications?
2. Explain how ASP.NET utilizes Server Controls to manage state within a stateless web environment. Provide examples of how Server Controls can enhance user interaction and data persistence across page requests.
3. Describe the role and functionality of Data Binding in ADO.NET. How does Data Binding simplify the process of displaying and manipulating database information in ASP.NET web applications?
4. Discuss the implementation and advantages of using Master Pages in ASP.NET applications. How do Master Pages contribute to a consistent look and feel across multiple web pages within a single application?
5. Outline the concept and practical application of the ASP.NET AJAX Control Toolkit in enhancing web application responsiveness. Provide an example of how a specific control from the toolkit can improve user experience by reducing page reloads.

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## SUBJECT : ARTIFICIAL INTELLIGENCE

**TIWARI PRAFUL JITENDRA**

1. Given a specific domain problem in AI, propose a heuristic function that could effectively guide an informed search strategy towards the solution. Discuss how your proposed heuristic addresses the trade-off between being admissible and being computationally efficient.
2. Describe the process and implications of applying alpha-beta pruning in a two-player game tree search. Include in your explanation how alpha-beta pruning affects the efficiency of finding the optimal move and the conditions under which it achieves the greatest reduction in the search space.
3. Construct a complex scenario that could be represented using First Order Logic. Outline the process of translating the scenario into FOL statements, and discuss the challenges and limitations of using FOL for knowledge representation in this context.
4. Analyze the complexities involved in planning and acting in nondeterministic domains. Propose a framework or algorithm that could effectively handle uncertainties and partial observations in planning, illustrating your proposal with a concrete example from a relevant AI application area.
5. Discuss the significance of reasoning with default information in AI, particularly in dynamic and uncertain environments like the Internet shopping world. Provide an example where default reasoning significantly enhances the decision-making process, detailing the logic and reasoning mechanisms employed.

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## SUBJECT : ENTERPRISE JAVA

**TIWARI PRAFUL JITENDRA**

1. Discuss the evolution of Java Enterprise Edition (Java EE) and its significance in the development of enterprise applications. Highlight key advancements from its inception to its current state, focusing on how these changes have improved the platform's capabilities for handling large-scale applications.
2. Explain the Servlet lifecycle, detailing each stage and its importance. Include a discussion on how annotations can be used instead of deployment descriptors in Servlet 3.0 and later versions, and provide an example of a simple annotation used to configure a servlet.
3. Compare and contrast the use of Java Server Pages (JSP) and Servlets in the development of dynamic web content. Discuss the advantages and disadvantages of each and explain scenarios where one might be preferred over the other.
4. Describe the concept of Enterprise JavaBeans (EJB) and its role in Java EE architecture. Discuss the differences between Stateful, Stateless, and Singleton session beans, including specific use cases where each type of session bean would be most effectively employed.
5. Explain the Java Persistence API (JPA) and its role in object/relational mapping (ORM). Discuss the architecture of JPA and how it facilitates the management of persistence and object-relational mapping in enterprise Java applications. Provide an overview of creating a basic JPA application, including steps from defining the persistence unit to running the application.

**MISHRA YASH SHIVPRASAD**

1. Explain the concept of "Enterprise Application" as it relates to Java EE. Discuss the key components that make up the Java EE architecture and how they work together to support the development of large-scale applications.
2. Describe the Servlet API and its lifecycle. How do annotations in Servlet 3.0 and later versions simplify web application development compared to using a deployment descriptor?
3. Outline the process of creating, deploying, and utilizing a RequestDispatcher in a web application. Provide an example to illustrate how it can be used to forward a request from one servlet to another servlet or a JSP page.
4. Discuss the importance of non-blocking I/O in web applications. Describe how you would implement a non-blocking read operation in a servlet, including the creation of the web application and necessary Java classes.
5. Detail the steps involved in writing a Java Persistence API (JPA) application. Focus on the process of creating a database and tables, configuring the persistence unit, and developing a web application to interact with the database using JPA.

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| SHARMA CHIRAG SUNIL |
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| 1. Describe the evolution of Java Enterprise Edition (Java EE) and its importance for developing enterprise-level applications. How does Servlet technology enhance Java EE's capabilities for dynamic web content management?<br>2. Explain how JDBC enables communication between Java applications and databases. Illustrate with an example where a Servlet utilizes JDBC to query a database and present the results on a web page.<br>3. Discuss the strategies used in Java EE for session management and tracking user data over HTTP requests. Compare the use of cookies and sessions, providing scenarios where each would be best suited.<br>4. Compare the approaches of Java Server Pages (JSP) and JavaServer Faces (JSF) within Java EE web development. Highlight their differences and suggest scenarios where one might be more advantageous than the other.<br>5. Explain the contributions of Enterprise JavaBeans (EJB) and the Java Persistence API (JPA) to the development of scalable enterprise applications. Describe an application scenario that integrates a Stateful Session Bean for session management and a JPA entity for database persistence. |

## Semester V (Practical Exam)

### SUBJECT : INTERNET OF THINGS

| PRAFUL TIWARI |
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| 1. Design a simple IoT-enabled smart garden irrigation system. Your system should use soil moisture sensors to determine when plants need watering. Explain how the system could use the internet to access local weather forecasts to avoid watering before rain is expected. Briefly describe one security measure you would implement to protect the system from unauthorized access.<br>2. Propose an IoT solution for energy-efficient smart lighting in a home. The system should automatically adjust the lighting based on the time of day and presence of people in the room. Describe how the system could be controlled remotely via a smartphone app. Discuss one privacy concern that might arise with the use of such a system and how you would address it. |

| KAMMARI PALLAVI VENKATRAMULU |
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| 1. Displaying different LED patterns with Raspberry Pi.<br>2. Displaying Time over 4-Digit 7-Segment Display using Raspberry Pi |

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## SUBJECT : ADVANCED WEB PROGRAMMING

| PRAFUL TIWARI |
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| 1. Create a Registration form to demonstrate use of various Validation controls.<br>2. Create Web Form to demonstrate use of Adrotator Control.<br>3. Create Web Form to demonstrate use User Controls. |

| MISHRA YASH SHIVPRASAD |
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| 1. Create a web application bind data in a multiline textbox by querying in another textbox.<br>2. Create a web application to display records by using a database.<br>3. Demonstrate the use of Datalist link control. |

## SUBJECT : ARTIFICIAL INTELLIGENCE

| SANKIKA SHINDE |
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| 1. Write a program to implement depth first search algorithm.<br>2. Write a program to implement breadth first search algorithm.<br>3. Write a program to simulate 4-Queen / N-Queen problem.<br>4. Write a program to solve tower of Hanoi problem. |

## SUBJECT : ENTERPRISE JAVA

| PRAFUL TIWARI |
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| 1. Using Requestdispatcher Interface create a Servlet which will validate the password entered by the user, if the user has entered "Servlet" as password, then he will be forwarded to Welcome Servlet else the user will stay on the index.html page and an error message will be displayed.<br>2. Create a servlet that uses Cookies to store the number of times a user has visited servlet.<br>3. Create a servlet demonstrating the use of session creation and destruction. Also check whether the user has visited this page first time or has visited earlier also using sessions. |

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| MISHRA YASH SHIVPRASAD |
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| 1. Create a Servlet application to upload and download a file.<br>2. Develop a Simple Servlet Question Answer Application using Database.<br>3. Create simple Servlet application to demonstrate Non-Blocking Read Operation. |

| CHETTIYAR AMBIKA RAVI |
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| 1. Develop a simple JSP application to display values obtained from the use of intrinsic objects of various types.<br>2. Develop a simple JSP application to pass values from one page to another with validations. (Name-txt, age-txt, hobbies-checkbox, email-txt, gender-radio button).<br>3. Create a registration and login JSP application to register and authenticate the user based on username and password using JDBC. |

| SHARMA CHIRAG SUNIL |
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| 1. Create an html page with fields, eno, name, age, desg, salary. Now on submit this data to a JSP page which will update the employee table of database with matching eno.<br>2. Create a JSP page to demonstrate the use of Expression language.<br>3. Create a JSP application to demonstrate the use of JSTL. |

## SUBJECT : PROJECT DISSERTATION

| PRAFUL TIWARI |
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| BRING SPIRAL BOUND PROJECT DISSERTATION WITH ALL 4 CHAPTERS COMPLETED FOR THE VIVA VOCE. |