MES Garware College of Commerce, Pune, India (Autonomous)
T. Y. BBA-CA(NEP PATTERN 2023-24) SEMESTER – VI
COURSE CURRICULUM

Sr. No.	Course Code	Course Title	Credits	Page No.
	MAJOR CORE (A)			
1	23BA6-A172	Advance Java	4	2
2	23BA6-A236	Software Project	2	5
	MAJOR ELECTIVE (B)			
3	23BA6-B182	Node JS	4	7
	FP / OJT / CEP (E)			
4	23BA6-E233	On The Job Training (OJT)	4	9
	MINOR (F)			
5	23BA6-F281	Operating System	4	13
Total Credits			**18**	

Note : Click on the Course Code or Course Title to access the link to Course Details

Major Core (A)

Course Code: 23BA6-A172	Subject / Course: Advance Java	Marks: 100 Credits: 4

Course Objectives:

1. To develop an understanding of Java Database Connectivity.
2. To develop an understanding of multithreading.
3. To develop an understanding of JSP and servlets.
4. To develop an understanding of networking using Java.
5. To develop an understanding of the basics of hibernate and Spring.

Course Outcome:

After completing the course, the student shall be able to

CO1: Understand and implement JDBC.

CO2: Learn and understand multithreading and apply them in solving problems.

CO3: Understand and write server-side applications using Servlets and JSP

CO4: Understand and implement concepts of networking

CO5: Understand basics of Hibernate and Spring.

Unit	Unit Title	Contents	No. of Lectures
I	Java Database Connectivity	(**Note:** Students are requested to use IDE and Mysql database.) 1.1 The design of JDBC 1.2 Basic JDBC program Concept 1.3 JDBC Drivers 1.4 Architecture of JDBC 1.5 Making the Connection, Statement , ResultSet , PreparedStatement, CallableStatement 1.6 Executing SQL commands 1.7 Executing queries	12
II	Multithreading	2.1 Introduction to Multithreading. 2.2 Thread creation: Thread Class, Runnable Interface. 2.3 Life cycle of Thread. 2.4 Thread Priority. 2.5 Execution of Thread .	12

Unit	Unit Title	Contents	No. of Lectures
		2.6 Synchronization and Inter thread communication.	
III	Servlets and JSP	3.1 Introduction to Servlet 3.2 Types of Servlet: Generic Servlet and Http Servlet 3.3 Life cycle of servlet 3.4 Session Tracking. 3.5 Servlet with database. 3.6 Introduction to JSP. 3.7 JSP Life Cycle. 3.8 Components of JSP. [Directives, Tags, Scripting Elements] 3.9 JSP with Database	16
IV	Networking	4.1 Overview of networking 4.2 Connection oriented transmission – Stream Socket Class 4.3 Creating a Socket to a remote host on a port (creating TCP client and server) 4.4 Simple Socket Program Example	10
V	Introduction to Spring & Hibernate	**Spring:** 5.1 Introduction 5.2 Applications and Benefits of spring 5.3 Architecture and Environment Setup 5.4 Hello World Example 5.5 Core Spring- IoC Containers, Spring Bean Definition, Scope, Lifecycle **Hibernate :** 5.6 Architecture and Environment 5.7 Configuration, Sessions, Persistent Class 5.8 Mapping Files, Mapping Types 5.9 Introduction to Swing Component and Container Classes 5.10 Exploring Swing Controls- JLabel and Image Icon, JText Field, The Swing Buttons JButton, JToggle Button, JCheck Box, JRadio Button, JTabbed Pane, JScroll Pane, JList, JTable, JComboBox, Swing Menus, Dialogs, JFileOpen, JColorChooser.	10
Total No of Lectures			**60**

Suggested Readings:

Sr. No.	Name of Book	Author	Publication
1	The Complete Reference – JAVA	HerbertSchildt	McGraw Hill audio
2	Programming with JAVA	Balgurusamy	McGraw Hill
3	Programming in Java	S. Malhotra, S. Chudhary (2^{nd} edition)	Oxford Univ. Press.

Course Code : 23BA6-A236	Subject / Course : Software Project	Total Marks: 50 Credits: 2

Course Objectives:

- Apply information technology principles and practices to real-world solutions
- Demonstrate effective use of written, verbal, and non-verbal communication, employing relevant knowledge, skills, and judgment in a business setting
- Manage a simple project and be able to contribute to a more complex project as a team member

Course Outcome:

On completion of the course, student will be able

CO1: Program using one of the software languages to develop and evaluate software, hardware infrastructure, and network solutions to meet desired client outcomes

CO2: Work as a professional maintaining high standards of practice, making ethical/legal judgments and decisions, and sustaining a professional standing through a commitment to life-long learning

CO3: Develop and apply personal management and team member skills as a professional software developer

Guidelines:

- Students should work in a team of maximum 2 students.
- Students can choose a project based on HTML/CSS/Java Script
- Students must use Database for project.
- The student group will work independently throughout the project work including: problem identification, information searching, literature study, design and analysis, implementation, testing, and the final reporting.
- Project guide must conduct project presentations to monitor the progress of the project groups.
- At the end of the project, the group should prepare a report which should conform to international academic standards. The report should follow the style in academic journals and books, with clear elements such as: abstract, background, aim, design and implementation, testing, conclusion and full references, Tables and figures should be numbered and referenced in the report.
- The final project presentation with demonstration will be evaluated by the project guide (appointed by the college) and one more examiner.

Evaluation Guidelines:

IA (20 marks)			EE (30 marks)		
First Presentation	Second Presentation	Documentation	Project Logic / Presentation	Documentation	Viva
05	05	10	10	10	10

Recommended Documentation contents:

Abstract

Introduction

- Problem Statement
- Purpose / objective and goals
- Literature survey
- Project scope and limitation

System analysis

- Existing systems
- Scope and limitations of existing systems
- Project perspective, features
- Requirement analysis – Functional requirements, performance requirements, security requirements etc.

System Design

- Design constraints
- System Model: DFD
- Data Model
- User interfaces

Implementation details

- Software/hardware specifications

Outputs and Reports Testing

Test Plan, Black Box Testing or Data Validation Test Cases, White Box Testing or Functional Validation Test cases and results

Conclusion and Recommendations

Future Scope

Bibliography and References

Major Elective (B)

Course Code: 23BA6-B182	Subject / Course : Node JS	Marks: 100 Credits: 4

Course Objectives :

1. To understand basic concepts of Node JS.
2. To understand Node JS Modules.
3. To understand Node Package Manager.
4. To understand Web Server and Events.
5. To understand File System and Database connectivity.

Course Outcome :

On completion of the course, student shall be able to,

CO1: Understand basic concepts of Node JS.

CO2: Design and implement Node JS Modules.

CO3: Design and implement Node Package Manager.

CO4: Understand Web Server and Events.

CO5: Understand File System and Database connectivity.

Unit	Unit Title	Contents	No. of lectures
I	Introduction to Node JS	1.1 Introduction 1.2 Concept of Node JS 1.3 Advantages of Node JS 1.4 Traditional Web Server Model 1.5 NodeJS Process Model 1.6 Install NodeJS on Windows 1.7 Working in REPL	10
II	Node JS Modules	2.1 Functions 2.2 Buffer 2.3 Module 2.4 Module Types 2.5 Core Modules 2.6 Local Modules 2.7 Module.Exports	12

Unit	Unit Title	Contents	No. of lectures
III	Node Package Manager	3.1 Concept of NPM 3.2 Installing Packages Locally 3.3 Adding dependency in package json 3.4 Installing packages globally 3.5 Updating packages	10
IV	Web Server and Events	4.1 Creating web server 4.2 Handling http requests 4.3 Sending requests 4.4 EventEmitter class 4.5 Returning event emitter 4.6 Inhering events	12
V	File System and Database connectivity	5.1 Reading a File 5.2 Writing a File 5.3 Writing a file asynchronously 5.4 Opening a file 5.5 Deleting a file 5.6 Other IO Operations 5.7 Connection string 5.8 Configuring Database 5.9 Working with select command 5.10 Updating records 5.11 Deleting records	16
Total No of Lectures			**60**

Suggested Books:

Sr. No.	Title of the Book	Author/s	Publication
1.	Node.js complete reference guide	Velentin Bojinov, David Herron, Dioge Resende	Packt Publishing Limited
2.	Mastering Nod.JS	Sandro Pasquali	Packt Publishing Limited

FP / OJT / CEP (E)

Course Code : 23BA6-E233	Subject / Course : On The Job Training (OJT)	Total Marks: 100 Credits: 4

Course Objectives :

1. To explore the fundamental concepts of **Big Data** and **Data Science**, including data types, challenges, and applications.
2. To develop an understanding of **data analytics techniques**, statistical methods, and their role in decision-making.
3. To provide hands-on experience with **R programming** for data manipulation, visualization, and analysis.

Course Outcome :

After completing the Course, the student shall be able to:

CO1: Explain the concepts of Big Data and Data Science and their applications in real-world scenarios.

CO2: Apply statistical techniques such as probability, correlation, and regression for data analysis.

CO3: Implement R programming script to manipulate, visualize, and analyze datasets effectively.

Guidelines for Field Projects in Information Communication and Technology (ICT)

1. Introduction

Field projects provide students with hands-on experience in ICT, allowing them to apply theoretical knowledge to real-world technological challenges. These projects help students develop analytical, problem-solving, and research skills while engaging with industry professionals in the ICT domain.

2. Objectives of the Field Project

- To bridge the gap between academic learning and industry ICT practices.
- To enable students to apply theoretical ICT concepts in a practical business setting.
- To develop critical thinking, research, and problem-solving skills in ICT.
- To encourage interaction with professionals in the ICT field.
- To provide exposure to industry trends, challenges, and best practices in ICT.

3. Selection of Field Project

Students should select a project aligned with their specialization, choosing from the following domains:

Specialization	Possible Field Project Areas
Cybersecurity	Threat detection, network security, encryption techniques, risk management
Software Development	Web application development, mobile app development, cloud computing solutions
Data Science & Analytics	AI and machine learning applications, big data analytics, data visualization
Networking & Cloud Computing	Cloud security, server virtualization, network infrastructure optimization
Information Systems Management	ERP implementation, IT governance, database management, business intelligence systems
Internet of Things (IoT)	Smart home systems, IoT security, edge computing

4. Guidelines for Conducting the Field Project

4.1 Project Proposal Submission

- Students must submit a project proposal before starting fieldwork.
- The proposal should include:
  - Title of the project
  - Objectives of the project
  - Industry/Company/Location of the project
  - Expected outcomes
  - Methodology (Data collection process)
  - Timeline (Project completion schedule)
- The proposal must be approved by the faculty mentor before commencing fieldwork.

4.2 Fieldwork & Data Collection

- Students should spend a minimum of 6-8 weeks conducting field research.
- Methods of data collection may include:
  - Interviews with industry professionals
  - Surveys & questionnaires
  - Observations at the company/site
  - Case study analysis
  - Secondary data collection from industry reports and research papers

4.3 Analysis & Findings

- Students should analyze the collected data using:
  - Qualitative methods – Thematic analysis, content analysis
  - Quantitative methods – Statistical tools (Excel, SPSS, R, Python)
- Compare findings with industry benchmarks and existing literature.
- Identify key trends, challenges, and opportunities in the chosen ICT specialization.

4.4 Project Report Format

The final report should follow this structure:

1. Cover Page
    - Title of the project
    - Student's name & roll number
    - Specialization & department
    - Faculty mentor's name
    - Date of submission
2. Executive Summary
3. Brief overview of the project
4. Key objectives, methodology, and findings
5. Introduction
    - Background of the topic
    - Relevance to the chosen specialization
    - Scope and limitations
6. Literature Review
    - Summary of existing research & industry insights
7. Research Methodology
    - Data collection methods
    - Sampling technique
    - Tools & techniques used for analysis
8. Findings & Analysis
    - Presentation of data using tables, graphs, and charts
    - Interpretation of results
9. Conclusions & Recommendations
    - Summary of key findings
    - Practical recommendations for the industry
10. Challenges & Learning Outcomes
    - Challenges faced during the field project
    - Key takeaways from the experience
11. References
    - Citations in APA/Harvard format
12. Appendix (If Any)

- Additional data, survey questionnaires, interview transcripts

4.5 Presentation & Evaluation

- Each student must present their findings in a 15-20 minute presentation.
- Evaluation Criteria:

Component	Weightage (%)
Research Proposal & Objectives	10%
Fieldwork & Data Collection	20%
Data Analysis & Interpretation	20%
Report Writing & Documentation	25%

Presentation & Q&A	25%

5. Ethics & Professional Conduct

- Students must maintain confidentiality of company data.
- Proper acknowledgment & citation of data sources is mandatory.
- Follow ethical guidelines while conducting interviews and surveys.

6. Conclusion

The field project is a crucial component of experiential learning, allowing students to develop industry-relevant ICT skills. A well-executed project will enhance employability, build research capabilities, and strengthen decision-making abilities in real-world technological scenarios.

Minor (F)

Course Code : 23BA6-F281	Subject / Course : Operating System	Total Marks: 100 Credits: 4

Course Objectives:

- To know the services provided by Operating System
- To know the scheduling concept
- To understand design issues related to memory management and various related Algorithms.
- To know the basic concept of File Management in Operating System.

Course Outcome:

On completion of the course, student will be able

CO1: Ability to understand the different services of Operating System.

CO2: To understand and practical knowledge of different scheduling techniques.

CO3: Practical knowledge of memory and its internal Structure.

CO4: To understand the basic concept of File management and various related algorithms

Unit	Unit Title	Contents	No. of Lectures
I	Introduction to Operating System	1.1 What is Operating System 1.2 Computer system architecture 1.3 Services provided by OS 1.4 Types of OS 1.5 Operating System Structure	15
II	CPU Scheduling	2.1 What is scheduling 2.2 Scheduling Concepts – - CPU- I/O Burst Cycle - CPU Scheduler - Preemptive and Non-preemptive scheduling - Dispatcher 2.3 Scheduling Algorithms – - FCFS - SJF (Preemptive& non-preemptive) - Priority Scheduling (Preemptive& Non- preemptive)	15

Unit	Unit Title	Contents	No. of Lectures
		- Round Robin Scheduling	
III	Deadlock	3.1 Introduction 3.2 Deadlock Characterization 3.3 Necessary Condition 3.4 Deadlock Handling Technique– - Deadlock Prevention - Deadlock Avoidance - Safe State - Resource allocation graph algorithm - Bankers algorithm - Deadlock Detection - Recovery from Deadlock – - Process Termination - Resource Preemption	15
IV	Memory Management	4.1 Dynamic loading 4.2 Swapping 4.3 Contiguous Memory Allocation – - Memory mapping and protection - Memory allocation - Fragmentation 4.4 Paging – - Basic Method - Hardware support - Protection - Shared Pages 4.5 Virtual Memory Management – - Background - Demand paging - Performance of demand paging - Page replacement – - FIFO - OPT - LRU - Second chance page replacement - MFU - LFU	15
Total No. of Lectures			**60**

Suggested Readings :

Sr. No.	Name of the Book	Author	Publication	Edition	Place
1	Operating System Concepts	Siberchatz, Galvin	PHI Learning Private Limited	--	--
2	Operating Systems	Pabitra Pal Choudhary	PHI Learning Private Limited	--	--

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MES Garware College of Commerce, Pune, India (Autonomous)

T. Y. BBA-CA (NEP PATTERN 2023-24) SEMESTER – VI

LAB COURSES PRACTICAL SLIPS

Sr. No.	Course Code	Course Title	Credits	Page No.
1	23BA6-A076	Lab Based on Advance Java	2	2
2	23BA6-A077	Lab Based on Node JS	2	32

Note : Click on the Course Code or Course Title to access the link to Course Details

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a java program to display IP Address and Name of client machine.

[15]

B) Write a JSP script to accept username, store it into the session, compare it with password in another jsp file, if username matches with password, then display appropriate message in html file

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a multithreading program in java to display all vowels from a given String. **[15]**

B) Write a SERVLET program which counts how many times a user has visited a web page. If user is visiting the page for the first time, display a welcome message. If the user is revisiting the page, display the number of times visited. (Use cookies) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program to displays the details of employees (eno, ename, department, sal) whose department is "Computer Science". **[15]**

B) Write a java program to simulate traffic signal using multithreading. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a java program to display "Hello Java" message n times on the screen. (Use Runnable Interface). **[15]**

B) Write a JSP program to create an online shopping mall. User must be allowed to do purchase from two pages. Each page should have a page total. The third page should display a bill, which consists of a page total of whatever the purchase has been done and print the total. (Use Session) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a java program to create Teacher table(TNo.TName, Sal, Desg) and insert record in it. **[15]**

B) Write a MultiThreading program in java using Runnable interface to draw a horizontally rolling ball on an applet container. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program to accept the details of customer (CID, CName, Address, Ph_No) and store it into the database (Use PreparedStatement interface) **[15]**

B) Write a SOCKET program in java to check whether given file is present on server or not, If it is present then display its content on the server's machine otherwise display error message. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP program to calculate sum of first and last digit of a given number. Display sum in Red Color with font size 18. **[15]**

B) Write a Multithreading program in java for Racing Car. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a Multithreading program using Runnable interface to blink Text on the frame. **[15]**

B) Write a SERVLET application to accept username and password, search them into database, if found then display appropriate message on the browser otherwise display error message. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program to delete the records of employees whose names are starting with 'A' character. **[15]**

B) Write a Multithreading program in java using Runnable interface to display a bouncing ball on an Applet. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program to count the number of records in table. (Without using standard method) **[15]**

B) Write a Multithreading program in java for bouncing ball. For each bounce change the color of ball randomly. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program to remove "percentage" column from student (rno, sname, percentage table **[15]**

B) Write a SERVLET program to display addition of two numbers. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a Multithreading program in java to display the number's between 1 to 100 continuously in a TextField by clicking on button.(use Runnable Interface). **[15]**

B) Write a JSP program to accept the details of Account (ANo, Type, Bal) and store it into database and display it in tabular form. (Use PreparedStatement interface) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program to create a Mobile (Model_No, Company_Name, Price, Color) table and insert a record in it. **[15]**

B) Write a Socket program in java for simple stand alone chatting application. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a Socket program in java which displays the server machine's date and time on the client machine. **[15]**

B) Write a JDBC program in java to display details of Book_Sales(SalesID, Date, Amount) of selected month in JTable. Book_sales table is already created. (Use JCombo component for Month selection) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program in java to update an address of given customer (cid, cname, address) and display updated details. **[15]**

B) Write a SERVLET program in java to accept details of student (SeatNo, Stud_Name, Class, Total_Marks). Calculate percentage and grade obtained and display details on page. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP program which accept UserName in a TextBox and greets the user according to the time on server machine. **[15]**

B) Write a program in java which will show lifecycle (creation, sleep, and dead) of a thread. Program should print randomly the name of thread and value of sleep time. The name of the thread should be hard coded through constructor. The sleep time of a thread will be a random integer in the range 0 to 4999. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

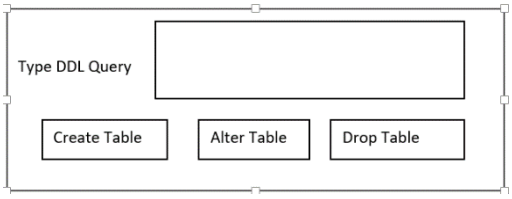
Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a java program which will display name and priority of current thread. Change name of Thread to MyThread and priority to 2. Display the details of Thread. **[15]**

B) Write a JDBC application using swing for the following: **[15]**



Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a java program using multithreading to execute the threads sequentially. (Use Synchronized Method) **[15]**

B) Write a SERVLET program that provides information about a HTTP request from a client, such as IP address and browser type. The servlet also provides information about the server on which the servlet is running, such as the operating system type, and the names of currently loaded servlets. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Create a JSP page to accept a number from an user and display it in words:
Example: 123 – One Two Three. The output should be in red color. **[15]**

B) Write a Multithreading program in java to convert smile face into the crying face after 5 seconds. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP program to display the details of Hospital (HNo, HName, Address) in tabular form on browser. **[15]**

B) Write a Socket program in java for chatting application. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC Program to display the names of Employees starting with 'S' character. **[15]**

B) Write a SERVLET program to Design an HTML page containing 4 option buttons (Painting, Drawing, Singing and swimming) and 2 buttons reset and submit. When the user clicks submit, the server responds by adding cookie containing the selected hobby and sends the HTML page to the client. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

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MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a Socket program in java in which client accept a number, send it to the server, server calculates its factorial and sends result to the client. **[15]**

B) Write a java program to create a student table with field's rno, name and per. Insert values in the table. Display all the details of the student on screen. (Use PreparedStatement Interface) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP script to accept the details of Student (RNo, SName, Gender, Computer _ Knowledge , Class) and display it on the browser. Use appropriate controls for accepting data. **[15]**

B) Write a Java Program to Read, Update and Delete any record from "Elements" table. The table has following fields (Atomic_weight , Name (primary key), Chemical_Symbol). The input should be provided through Command Line Arguments along with the appropriate data. The operations are: R : Read, U: Update, D: Delete. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP script to check whether given mail ID is valid or not. (Mail ID should contain one @ symbol) **[15]**

B) Write a java program to accept the details of college (CID, CName, Address, year) and store it into database (Use Swing and PreparedStatement interface) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP script to accept UserName and his NickName through html page and then displays username when visit count to page is odd and displays nickname when the visit count to the page is even. **[15]**

B) Write a java program for implementation scrollable ResultSet. Consider Emp table (eno ename, sal) . Provide the operations moveFirst, moveNext, movePrevious and moveLast on the database. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a Multithreading program in java to display all the alphabets from A to Z after 3 seconds. **[15]**

B) Write a java program to display sales details of products between two dates in JTable(use database). Consider product table (pid, pname, amount) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JDBC program to delete the details of given employee (ENo EName Salary). Accept employee ID through command line. **[15]**

B) Write a Multithreading program in java to create an applet that contains a TextField to show time. The time should be displayed in the hh:mm:ss format. The thread should start when the user clicks the Start button and stop when the user clicks the stop button. Initialize the values to current time. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP program to check whether given number is Armstrong or not. (Use Include directive). **[15]**

B) Write a java program to display the selected employee details in JTable. (use database, combo box for employee selection) Employee having fields eno, ename, sal,desg. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP program to accept Name and Age of Voter and check whether he is eligible for voting or not. **[15]**

B) Write a menu driven java program for the following: **[15]**

- Insert
- Update
- Delete
- Search
- Display
- Exit

Consider Student (rno, sname, per) table for this.

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-VI

Lab Course: Lab Based on Advance Java

Course Code: 23BA6-A076

Credits: 2 Marks:50

Q.1 Advance Java:

A) Write a JSP program to display all the prime number's between 1 to n in "Blue" Color. **[15]**

B) Write a SERVLET program to display the details of Product (ProdCode, PName, Price) on the browser in tabular format. (Use database) **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js file that will convert the output "Hello World!" into upper-case letters. **[15]**

B) Create a Node.js file that opens the requested file and returns the content to the client. If anything goes wrong, throw a 404 error. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node Js Application that uses user defined Module to return the factorial of given number.

[15]

B) Using Node.js create a web page to read two file names from user and append contents of first file into second file.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Nodc.js Application that uses user defined module circle.js which exports the functions area () and circumference () and display the details on console.

[15]

B) Using Node.js create a web page to read two file names from user and combine in third file with all content in Upper case.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js Application that accepts first name, last name and date of birth of a Person and define a Module that concatenate firstName and lastName and also calculate the age of the Person.

[15]

B) Create a Node.js file that writes an HTML form, with an upload field

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js Application that performs following operations on Buffer data.

a. Concat
b. Compare
c. Copy

[15]

B) Create a Node.js Application to download jpg image from the Server.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js file that opens the requested file and returns the content to the client. If anything goes wrong, throw a 404 error.

[15]

B) Create a Simple Web Server using Node.js that shows the college information.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create a web page to read two file names from user and append contents of first file into second file.

[15]

B) Using Node.js create a User Login System.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create a web page to read two file names from user and combine in third file with all content in Upper case.

[15]

B) Create a Node.js file that demonstrate create database student DB and student table (Rno, Sname, Percentage) in MySQL.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js file that writes an HTML form, with an upload field **[15]**

B) Create a Node.js Application that contain the Employee Registration details and write a JavaScript to validate DOB, Joining Date, and Salary. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js Application to download jpg image from the Server. **[15]**

B) Using Nodejs create a S Y BBA(CA) Teachers Profile System. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Simple Web Server using Node.js that shows the college information. **[15]**

B) Create a Node.js file that Select all records from the "Employee" table, and Update the salary of the given Eno. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create a User Login System. **[15]**

B) Using Node.js display the Employee details order by salary in Table format. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js file that demonstrate create database student DB and student table (Rno, Sname, Percentage) in MySQL.

[15]

B) Create Node.js application using user defined Rectangle module to find area of rectangle and display the details on console.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js Application that contain the Employee Registration details and write a JavaScript to validate DOB, Joining Date, and Salary.

[15]

B) Using Node.js clone the "Hacker News" website.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Nodejs create a S Y BBA(CA) Teachers Profile System. **[15]**

B) Write Node.js application containing an event handler to open and read the contents of a file. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js file that Select all records from the "Employee" table, and Update the salary of the given Eno.

[15]

B) Using Node.js create an application that shows S Y BBA(CA) course structure.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js display the Employee details order by salary in Table format. **[15]**

B) Create a Node.js Application to count number of lines in a file and display the count on console. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create Node.js application using user defined Rectangle module to find area of rectangle and display the details on console.

[15]

B) Create a Node.js Application to search a particular word in a file and replace all occurrences of that word with another word and bold all.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js clone the "Hacker News" website. **[15]**

B) Using Node.js create an application that shows the events of the day. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Write Node.js application containing an event handler to open and read the contents of a file.

[15]

B) Using Node.js create a Historical place portal.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create an application that shows S Y BBA(CA) course structure. **[15]**

B) Using Node.js create a department store portal. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js Application to count number of lines in a file and display the count on console.

[15]

B) Create a Node.js Application that contain the Student Registration details and write a JavaScript to validate DOB, Mobile Number, and email address.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js Application to search a particular word in a file and replace all occurrences of that word with another word and bold all.

[15]

B) Using Node.js create a matrimonial portal.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create a Historical place portal. **[15]**

B) Create a Node.js Application that uses user defined module circle.js which exports the functions area () and circumference () and display the details on console. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create an application that shows the events of the day.

[15]

B) Write Node.js application containing an event handler to open and read the contents of a file.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create a department store portal.

[15]

B) Create a Node.js file that will convert the output "Hello World!" into upper-case letters.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create an Node.js Application that contain the Student Registration details and write a JavaScript to validate DOB, Mobile Number, and email address.

[15]

B) Create a Nodejs Application that uses user defined Module to return the factorial of given number.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Using Node.js create a matrimonial portal. **[15]**

B) Create a Nodc.js Application that uses user defined module circle.js which exports the functions area () and circumference () and display the details on console. **[15]**

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS:

A) Create a Node.js Application that uses user defined module circle.js which exports the functions area () and circumference () and display the details on console.

[15]

B) Create a Node.js Application that accepts first name, last name and date of birth of a Person and define a Module that concatenate firstName and lastName and also calculate the age of the Person.

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----

MES Garware College Of Commerce

T.Y.B.B.A.(C.A.) Semester-V

Lab Course: Lab Based on Node JS

Course Code: 23BA6-A077

Credits: 2 Marks:50

Q.1 Node JS::

A) Write Node.js application containing an event handler to open and read the contents of a file.

[15]

B) Create a Node.js Application that performs following operations on Buffer data.

a. Concat
b. Compare
c. Copy

[15]

Q.2 Viva **[10]**

Q.3 Lab Book **[10]**

----- X -----