



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

**Affiliated to
Savitribai Phule Pune University, Pune**

AUTONOMY HANDBOOK

**Choice Based Credit System - CBCS
(2021 Pattern)**

With effect from Academic Year 2023-24

**Degree Programme of
Bachelor of Business Administration – Computer Application (BBA-CA)**

Course Contents

Sr. No.	Course Code	Name of the Course (Paper / Subject)	Pg. No.
1	B4-21/601	Advanced Java	3
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Course Contents

Course Code: B4-21/601	Subject / Course: Advanced Java	Marks: 100 Credits: 3
<p>Prerequisite:</p> <ol style="list-style-type: none"> 1. Student should know the basics of java programming concepts. <p>Course Objectives:</p> <ol style="list-style-type: none"> 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. 		
<p>Course Outcome:</p> <p>After completing the course, the student shall be able to</p> <p>CO1: Understand and implement JDBC.</p> <p>CO2: Understand multithreading and apply them in solving problems.</p> <p>CO3: Understand and write server-side applications using Servlets and JSP</p> <p>CO4: Understand and implement concepts of networking</p> <p>CO5: Understand basics of Hibernate and Spring.</p>		

Unit	Unit Title	Contents	No. of Lectures
I	Java Database Connectivity	1.1 Introduction to JDBC. 1.1.1 The design of JDBC 1.1.2 Basic JDBC program Concept 1.1.3 Drivers 1.1.4 Architecture of JDBC 1.1.5 Making the Connection, Statement, ResultSet, PreparedStatement, CallableStatement 1.1.6 Executing SQL commands 1.1.7 Executing queries	10

Unit	Unit Title	Contents	No. of Lectures
II	Multithreading	2.1 Multithreading: 2.2.1 Introduction to Multithreading. 2.2.2 Thread creation: Thread Class, Runnable Interface. 2.2.3 Life cycle of Thread. 2.2.4 Thread Priority. 2.2.5 Execution of Thread Application. 2.2.6 Synchronization and Interthread communication.	10
III	Servlets and JSP	3.1 Servlet and JSP 3.1.1 Introduction to Servlet 3.1.2 Types of Servlets: Generic Servlet and Http Servlet 3.1.3 Life cycle of servlet 3.1.4 Session Tracking. 3.1.5 Servlet with database. 3.2 JSP 3.2.1 Introduction to JSP. 3.2.2 JSP Life Cycle. 3.2.3 Components of JSP. [Directives, Tags, Scripting Elements] 3.2.4 JSP with Database	15
IV	Networking	4.1 Networking 4.1.1 Overview of networking 4.1.2 Connection oriented transmission – Stream Socket Class 4.1.3 Creating a Socket to a remote host on a port (creating TCP client and server) 4.1.4 Simple Socket Program Example	7

Unit	Unit Title	Contents	No. of Lectures
V	Introduction to Spring & Hibernate Spring	5.1 Spring & Hibernate Spring: 5.1.1 Introduction 5.1.2 Applications and Benefits of spring 5.1.3 Architecture and Environment Setup 5.1.4 Hello World Example 5.1.5 Core Spring- IoC Containers, Spring Bean Definition, Scope, Lifecycle Hibernate 5.1.6 Architecture and Environment 5.1.7 Configuration, Sessions, Persistent Class 5.1.8 Mapping Files, Mapping Types 5.1.9 Examples	5
Total No of Teaching Lectures			48
Total No of Lectures for Evaluation			9

Teaching Methodology:

Unit	Unit Title	Teaching methodology	Project (If any)	Outcome expected	Weightage of Marks (%)
				Conceptual understanding Knowledge / Skills / Attributes etc	
I	Java Database Connectivity	Lecture - Demonstration and problem-based learning	NA	<ul style="list-style-type: none"> To develop disciplinary knowledge of JDBC and apply analytical, creative, problem-solving skills for problem solving. 	20%
II	Multithreading	Lecture - Demonstration and problem based learning	NA	<ul style="list-style-type: none"> To develop disciplinary knowledge of multithreading and apply analytical, creative, problem-solving skills for problem solving. 	20%
III	Servlets and JSP	Lecture - Demonstration and problem	NA	<ul style="list-style-type: none"> To develop disciplinary knowledge of JSP and Servlets and apply 	30%

Unit	Unit Title	Teaching methodology	Project (If any)	Outcome expected	Weightage of Marks (%)
				Conceptual understanding Knowledge / Skills / Attributes etc	
		based learning		analytical, creative, problem-solving skills for problem solving.	
IV	Networking	Lecture - Demonstration and problem based learning	NA	<ul style="list-style-type: none"> To develop disciplinary knowledge of Networking and apply analytical, creative, problem-solving skills for problem solving. 	15%
V	Introduction to Spring & Hibernate Spring		NA	<ul style="list-style-type: none"> To develop disciplinary knowledge of Hibernate for problem solving. 	5%

Evaluation Method:

Unit	Evaluation Method	Marks (100)			Project / Practical (If any)
		Formative Assessment		Summative Assessment	
		CCE I (20)	CCE II (20)	SEMESTER (60)	
I	Assignment	Assignment	Written Exam	MCQ / Written Examination	Practical in Computer Laboratory
II	Assignment	Assignment	Written Exam	MCQ / Written Examination	Practical in Computer Laboratory
III	Assignment	Assignment	Written Exam	MCQ / Written Examination	Practical in Computer Laboratory
IV	Assignment	Assignment	Written Exam	MCQ / Written Examination	Practical in Computer Laboratory
V	Assignment	Assignment	Written Exam	MCQ / Written Examination	Practical in Computer Laboratory

Suggested Readings:

Sr. No.	Title of the Book	Author/s	Publication
1	The Complete Reference – JAVA	HerbertSchildt	
2	Programming with JAVA -	Balgurusamy	
3	Programming in Java	S. Malhotra, S. Chudhary, 2nd edition,	Oxford Univ. Press.

Suggested Web / E-Learning Resources:

SR NO	Topic	Lectures (Available on Youtube / Swayam / MOOCS etc)	Films	Journals / Articles / Case studies
1				
2				
3				
4				

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Course Code: B4-21/602	Subject / Course: Android Programming	Marks: 100 Credits: 3
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To understand the fundamental concepts of Android Programming. 2. To understand Activity, Intent and Layout. 3. To understand Basic UI Design. 4. To understand Adapter and Menu. 5. To understand Threads and Notifications. 6. To understand Content Provider. 7. To understand Location based services and Google Map. 		
<p>Course Outcome:</p> <p>After completing the Course, the student shall be able to:</p> <p>CO1: Understand the fundamental concepts of Android Programming.</p> <p>CO2: Understand Activity, Intent and Layout.</p> <p>CO3: Understand Basic UI Design.</p> <p>CO4: Understand Adapter and Menu.</p> <p>CO5: Understand Threads and Notifications.</p> <p>CO6: Understand Content Provider.</p> <p>CO7: Understand Location based services and Google Map.</p>		

Unit	Unit Title	Contents	No of Lectures
I	Introduction to Android Programming	1.1 What is Android? 1.2 History and Versions 1.3 Android Architecture 1.4 Basic Building Blocks 1.5 Android API Levels 1.6 Application Structure 1.7 First Hello World Program	4
II	ACTIVITY, INTENT AND	2.1 Introduction to Activity 2.2 Activity life cycle 2.3 Introduction to Intent	7

Unit	Unit Title	Contents	No of Lectures
	LAYOUT	2.4 Types of Intent (Implicit and Explicit Intent) 2.5 Layout Manager 2.5.1 View and View Group 2.5.2 Linear Layout 2.5.3 Relative Layout 2.5.4 Table Layout 2.5.5 Grid Layout 2.5.6 Constraint Layout 2.5.7 Frame Layout 2.5.8 Scroll Layout	
III	BASIC UI DESIGN	3.1 Button (Push Button, Check Box, Radio Button, Toggle Button, Image Button) 3.2 Text Fields 3.3 Spinner 3.4 List View 3.5 Toast 3.6 Scroll View 3.7 ProgressBar View 3.8 Auto Complete Text View 3.9 Dialog Box 3.9.1 Alert Dialog. 3.9.2 DatePicker Dialog. 3.9.3 TimePicker Dialog. 3.9.4 Custom Dialog.	10
IV	ADAPTER AND MENU	4.1 Base Adapter 4.2 Array Adapter 4.3 ListView using Adapter 4.4 GridView using Adapter 4.5 Photo Gallery using Adapter 4.6 Using Menu with Views 4.6.1 Option Menu 4.6.2 Context Menu 4.6.3 Popup Menu	5

Unit	Unit Title	Contents	No of Lectures
V	THREADS AND NOTIFICATION	5.1 Worker thread 5.2 Handlers & Runnable 5.3 AsyncTask (in detail) 5.4 Broadcast Receiver 5.5 Services 5.5.1 Service life Cycle 5.5.2 Bounded Service 5.5.3 Unbounded Service 5.6 Notification 5.7 Alarm 5.8 Accessing Phone services (Call, SMS)	6
VI	CONTENT PROVIDER	6.1 Content Providers 6.2 SQLite Programming 6.3 SQLiteOpenHelper 6.4 SQLiteDatabase 6.5 Cursor 6.6 Searching for content 6.7 Adding, changing, and removing content 6.8 Building and executing queries 6.9 Android JSON	8
VII	LOCATION BASED SERVICES AND GOOGLE MAP	7.1. Display Google Maps 7.1.1 creating the project 7.1.2 Obtaining the Maps API Key 7.1.3 Displaying the Map 7.1.4 Displaying the Zoom Control 7.1.5 Changing Views 7.1.6 Navigating to a specific location 7.1.7 Adding Markers 7.1.8 Getting the location that was touched 7.1.9 Geocoding and Reverse Geocoding 7.2. Getting Location Data 7.3. Monitoring a Location	8
Total No of Teaching Lectures			48

Teaching Methodology:

Unit	Unit Title	Teaching methodology	Project (If any)	Outcome expected		Weightage of Marks (%)
				Conceptual understanding, Knowledge / Skills / Attributes etc		
I	INTRODUCTION TO Android Programming	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand the fundamental concepts of Android Programming.	Lifelong Learning, Application Skills	15%
II	ACTIVITY, INTENT AND LAYOUT	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Activity, Intent and Layout.	critical thinking, problem solving	20%
III	BASIC UI DESIGN	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Basic UI Design.	Lifelong Learning, Application Skills	15%
IV	ADAPTER AND MENU	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Adapter and Menu.	Experimental Learning	25%
V	THREADS AND NOTIFICATION	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Threads and Notifications.	Analytical reasoning, Problem solving	25%
VI	CONTENT PROVIDER	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Content Provider.	Experimental Learning, Application Skills	
VII	LOCATION BASED SERVICES AND GOOGLE MAP	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Location based services and Google Map.	Experimental Learning, Application Skills	

Evaluation Methodology:

Unit	Evaluation Method	Marks (100)			Project / Practical (If any) 1 Credit
		Formative Assessment		Summative Assessment	
		CCE I (20)	CCE II (20)	SEMESTER (60)	
1	Test and lab course work	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
2	Assignment and Quiz	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
3	Test and Lab course work	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
4	Test, Quiz or Lab course work	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
5	Assignment and Quiz	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
6	Assignment and Quiz	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
7	Assignment and Quiz	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory

Suggested Readings:

Sr. No.	Title of the Book	Author/s	Publication	Edition
1	Beginning Android4 Application Development	Wei-Meng Lee	WROX Publication	Latest
2	Professional Android for Application Development	Reto Meier	WROX Publication	Latest

Suggested Web / E learning Resources:

Sr. No.	Topic	Lectures (Available on Youtube / Swayam / MOOCS etc)	Links	Journals / Articles / Case studies
1	Android Mobile Application Development	Swayam	https://onlinecourses.swayam2.ac.in/nou22_ge57/preview	online course
2	Marketing your Android apps	edX	https://www.edx.org/course/marketing-your-androidapps?index=product&queryID=3300271bab81c4edcebdab8b837cb471&position=2	online course



Suggested Web / E learning Resources:

Course Code: B4-21/603	Subject / Course: Software Testing	Marks: 100 Credits: 3
<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To provide learner with knowledge in Software Testing techniques. 2. To understand different approaches of Software Testing 3. To understand software testing strategies and software metrics 4. To gain in depth knowledge of software metrics 5. To provide skills to design test case plan for testing software 6. To learn different software testing tools and software quality assurance 		
<p>Course Outcome:</p> <p>After completing the Course, the student shall be able to:</p> <p>CO1: Students will learn about basics of Software Testing techniques.</p> <p>CO2: Students will acquire Knowledge of Basic SQA.</p> <p>CO3: Students will understand different software testing strategies</p> <p>CO4: They will learn knowledge about software metrics</p> <p>CO5: Students will be able to design basic Test Cases.</p> <p>CO6: Students will be introduced to testing tools.</p>		

Unit	Unit Title	Contents	No of Lectures
I	Introduction	1.1 Introduction, Nature of errors, 1.2 Testing Objectives 1.3 Testing principles 1.4 Testing fundamentals, 1.5 Software reviews, Formal Technical reviews, 1.6 Inspection and walkthrough 1.7 Testing Life Cycle	5
II	Approaches to Testing – Testing Methods	2.1 White Box Testing and types of white box testing 2.2 Test Case Design 2.3 Black Box Testing and types of black box testing 2.4 Gray Box Testing	5

Unit	Unit Title	Contents	No of Lectures
III	Software Testing Strategies & Software metrics	3.1 Software Testing Process 3.2 Unit Testing 3.3 Integration- Top-down, Bottom up 3.4 System Testing 3.5 Acceptance Testing (alpha, Beta testing) 3.6 Validation and Verification 3.7 Big Bang Approach 3.8 Sandwich approach 3.9 Performance Testing 3.10 Regression Testing 3.11 Smoke Testing 3.12 Load Testing	15
IV	Software metrics	4.1 Introduction 4.2 Basic Metrics –size-oriented metric, Function – oriented metric 4.3 Cyclomatic Complexity Metrics Examples on Cyclomatic Complexity	10
V	Testing for Specialized Environments	5.1 Testing GUI's 5.2 Testing of Client/Server Architectures 5.3 Testing Documentation and Help Facilities 5.4 Testing for Real-Time Systems	5
VI	Testing Tools & Software Quality Assurance (Introduction)	6.1 JUnit, Apache JMeter, Win runner 6.2 Load runner, Rational Robot 6.3 Quality Concepts, Quality Movement, Background Issues, SQA activities 6.4 Formal approaches to SQA 6.5 Statistical Quality Assurance 6.6 Software Reliability 6.7 The ISO 9000 Quality Standards 6.8 SQA Plan 6.9 Six sigma 6.10 Informal Reviews	8
Total No of Teaching Lectures			48
Total No of Lectures for Evaluation			9

Unit	Unit Title	Teaching methodology	Project (If any)	Outcome expected	Weightage of Marks (%)
				Conceptual understanding, Knowledge / Skills / Attributes etc	
I	Introduction	Lecture method		<ul style="list-style-type: none"> • Disciplinary knowledge • Critical thinking • Moral and Ethical Awareness/Reasoning 	10%
II	Approaches to Testing – Testing Methods	Lecture method	-	<ul style="list-style-type: none"> • Problem Solving • Analytical Reasoning • Reflective Thinking • Application Skills • Employability 	15%
III	Software Testing Strategies & Software metrics	Lecture method	-	<ul style="list-style-type: none"> • Problem Solving • Critical thinking • Reflective Thinking • Professional Skills • Application Skills 	15%
IV	Software metrics	Lecture method		<ul style="list-style-type: none"> • Critical thinking • Information/Digital Literacy • Professional Skills • Employability • Decision Making Skills 	20%
V	Testing for Specialized Environments	Lecture method and demo		<ul style="list-style-type: none"> • Critical thinking • Information/Digital Literacy • Professional Skills • Employability 	20%
VI	Testing Tools & Software Quality Assurance (Introduction)	Lecture method and demo		<ul style="list-style-type: none"> • Critical thinking • Information/Digital Literacy • Professional Skills • Employability 	20%

Evaluation Method:

Unit	Evaluation Method	Marks (100)			Project / Practical (If any) 1 Credit
		Formative Assessment		Summative Assessment	
		CCE I (20)	CCE II (20)	SEMESTER (60)	
I	MCQ	MCQ	MCQ/ Written Examination	MCQ/ Written Examination	Nil
II	MCQ	MCQ Problem Solving	MCQ/ Written Examination	MCQ/ Written Examination	Nil
III	MCQ and assignment	Assignment	MCQ/ Written Examination	MCQ/ Written Examination	Nil
IV	MCQ and assignment	Assignment	MCQ/ Written Examination	MCQ/ Written Examination	Nil
V	MCQ and assignment	Assignment	MCQ/ Written Examination	MCQ/ Written Examination	Nil
VI	MCQ and assignment	Assignment	MCQ/ Written Examination	MCQ/ Written Examination	Nil

Suggested Readings:

Sr. No.	Title of the Book	Author/s	Publication
1	Software Engineering – A Practitioner’s approach	Roger S Pressman	7th Edition Tata McGraw-Hill
2	Effective Methods of Software Testing	William E Perry	Wiley Publishing Inc
3	Software Testing Principles and Practices	Srinivasan Desikan, Gopalswamy Ramesh	Pearson Publication
4	Total Quality Management	DaleH. Besterfield,	Prentice Hall, 2003

Sr. No.	Topic	Lectures (Available on Youtube / Swayam / MOOCS etc)	Films	Journals / Articles / Case studies
1	Software Testing	https://onlinecourses.nptel.ac.in/noc22_cs61/preview		
2	Introduction to Software Testing	https://www.coursera.org/learn/introduction-software-testing		

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Course Code: B4-21/604A	Subject / Course: Node JS	Marks: 100 Credits: 3
<p>Course Objectives:</p> <ol style="list-style-type: none"> 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. 		
<p>Course Outcome:</p> <p>After completing the course, the student shall be able to</p> <p>CO1: Understand basic concepts of Node JS.</p> <p>CO2: Design and implement Node JS Modules.</p> <p>CO3: Design and implement Node Package Manager.</p> <p>CO4: Understand Web Server and Events.</p> <p>CO5: Understand File System and Database connectivity.</p>		

Unit	Unit Title	Contents	No of Lectures
I	Introduction to Node JS	1.1 Introduction 1.2 What is 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	8
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	10

Unit	Unit Title	Contents	No of Lectures
III	Node Package Manager	3.1 What is NPM? 3.2 Installing Packages Locally 3.3 Adding dependency in package json 3.4 Installing packages globally 3.5 Updating packages	6
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	10
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 5.9 Working with select command 5.10 Updating records 5.11 Deleting records	14
Total No of Lectures			48

Teaching Methodology:

Unit	Unit Title	Teaching methodology	Project (If any) Practical	Outcome Expected		Weightage of Marks (%)
				Conceptual understanding	Knowledge / Skills / Attributes etc.	
I	Introduction to Node JS	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	To understand basic concepts of Node JS.	critical thinking and problem-solving skills	15%
II	Node JS Modules	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	To design and implement Node JS Modules	critical thinking, problem solving, analytical reasoning	20%

Unit	Unit Title	Teaching methodology	Project (If any) Practical	Outcome Expected		Weightage of Marks (%)
				Conceptual understanding Knowledge / Skills / Attributes etc.		
III	Node Package Manager	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	To design and implement Node JS Modules.	Lifelong Learning, Application Skills	15%
IV	Web Server and Events	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	To understand Web Server and Events.	Problem solving, Experimental Learning	25%
V	File System and Database connectivity	Lecture - Demonstration and Practical Implementation in Laboratory	Practical	To understand File System and Database connectivity.	Experimental Learning, Application Skills	25%

Evaluation Method:

Unit	Evaluation Method	Marks (100)			Project / Practical (If any)
		Formative Assessment		Summative Assessment	
		CCE I (20)	CCE II (20)	SEMESTER (60)	
1	Test and lab course work	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
2	Assignment and Quiz	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
3	Test and Lab course work	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
4	Test, Quiz or Lab course work.	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
5	Assignment and Quiz	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory

Suggested Readings:

Sr. No	Title of the book	Author	Publication	Edition	Place
1.	Node.js complete reference guide	Valentin Bojinov, David Herron, Dioge Resende	Packt Publishing ltd	Latest	
2.	Mastering Node.JS	Sandro Pasquali	Packt Publishing Limited	Latest	

Suggested Web / E-Learning Resources:

Sr. No.	Topic of the course	Lectures (Available on Youtube / Swayam / MOOCS etc.)	Link	Journals / Articles / Case studies
1		Swayam		online course
2		edX		online course



Course Code: B4-21/604B	Subject / Course: Advanced PHP	Marks: 100 Credits: 3
Course Objectives:		
<ol style="list-style-type: none"> 1. To understand Web Techniques of internet programming. 2. To understand XML with PHP. 3. To understand AJAX with PHP. 4. To understand Web Services. 		
Course Outcome:		
On completion of the course, student will be able to -		
CO1: Understand Web Techniques of internet programming.		
CO2: Understand XML with PHP.		
CO3: Understand AJAX with PHP.		
CO4: Understand Web Services.		

Unit	Unit Title	Contents	No. of Lectures
I	Web Techniques	1.1 Server information 1.2 Processing forms 1.3 Sticky forms 1.4 Setting response headers	10
II	XML with PHP	2.1 Introduction XML 2.2 XML document Structure 2.3 PHP and XML 2.4 XML parser 2.5 The document object model 2.6 The simple XML extension 2.7 Changing a value with simple XML	13
III	Ajax with PHP	3.1 Understanding java scripts for AJAX 3.2 AJAX web application model 3.3 AJAX —PHP framework 3.4 Performing AJAX validation 3.5 Handling XML data using php and AJAX 3.6 Connecting database using php and AJAX	13
IV	Web Services	4.1 Definition of web services 4.2 Basic operational model of web services, tools and technologies enabling web services 4.3 Benefits and challenges of using web services. 4.4 Web services Architecture and its characteristics	12

Unit	Unit Title	Contents	No. of Lectures
		4.5 Core building blocks of web services 4.6 Standards and technologies available for implementing web services 4.7 Web services communication models 4.8 Basic steps of implementing web services.	
Total No of Lectures			48

Teaching Methodology:

Unit	Unit Title	Suggestive teaching methodology	Practical	Outcome expected		Weightage of Marks (%)
				Conceptual understanding	Knowledge / Skills / Attributes etc.	
I	Web Techniques	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Web Techniques of internet programming.	critical thinking, problem solving, analytical reasoning	20%
II	XML with PHP	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand XML with PHP.	Life long Learning, Application Skills	15%
III	Ajax with PHP	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand AJAX with PHP.	Problem solving, Experimental Learning	25%
IV	Web Services	Lecture - Demonstration and Practical Implementation in Laboratory	practical	To understand Web Services.	Life long Learning, Application Skills	

Evaluation Method:

Unit	Evaluation Method	Marks (100)			Project / Practical (If any)
		Formative Assessment		Summative Assessment	
		CCE I (20)	CCE II (20)	SEMESTER (60)	
I	Test and lab course work	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
II	Assignment and Quiz	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
III	Test and Lab course work	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory
IV	Test, Quiz or Lab course work.	Assignment	Written Exam	Written Exam	Practical in Computer Laboratory

Suggested Books:

Sr. No.	Name of Book	Author	Publication	Edition	Place
1	Php: A Beginner's Guide	Vikram Vaswani	McGraw-Hill	Latest	
2	PHP: The Complete Reference	Steven Holzner	Paperbac	Latest	

Suggested Web/E-Learning Resources:

Sr. No.	Topic of the course	Lectures (Available on Youtube / Swayam / MOOCS etc.)	Link	Journals / Articles / Case studies
1	PHP and MySQL	Swayam	https://onlinecourses.swayam2.ac.in/aic20_sp32/preview	online course
2	Introduction to Functional Programming	edX	https://www.edx.org/course/introduction-to-functional-programming?index=product&queryID=f4340d3305a4a07d292ad5dc4aecf7b4&position=1	online course

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Code: B4-21/605

Subject / Course: Project based on Web based / Application based

Total Credits: 3

Workload: 48 Hrs

Guidelines:

- Students should work in a team of maximum 2 students.
- Students can choose a project topic Web based/Application based.
- 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 to 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 (30 marks)			EE (70 marks)		
First presentation	Second presentation	Documentation	Project Logic/Presentation	Documentation	Viva
10	10	10	40	10	20

Recommended Documentation contents:

Abstract

Introduction

- motivation
- problem statement
- purpose/objective and goals
- literature survey
- project scope and limitations

System analysis

- Existing systems
- scope and limitations of existing systems
- project perspective, features
- stakeholders
- 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

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

Practical Slips

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

Q1. Advance Java:

A) Write a java program to display IP Address and Name of client machine. [15M]

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.

[15M]

Q2. Node JS:

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

[25M]

OR

Advance PHP:

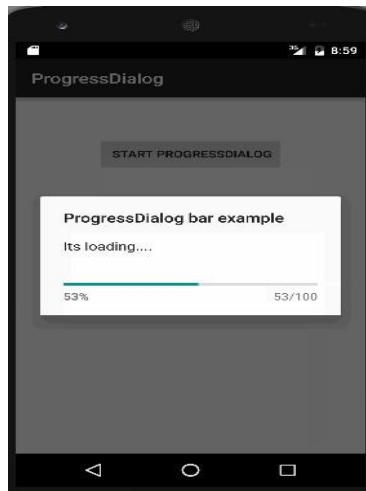
A) Write a PHP script to create student.xml file which contains student roll no, name address, college and course. Print student details of specific course in tabular format after accepting course as input.

[25M]

Q3. Android:

A) Create an Android application to demonstrate Progress Dialog Box using AsyncTask.

[25M]



Q.4 Viva

[10M]

Q.5 Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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) [15M]

Q2. Node JS:

A) Create a Nodejs Application that uses user defined Module to return the factorial of given number. [25M]

OR

Advance PHP:

A) Write a PHP script to solve following questions (use student.xml file) [25M]

i) Create a DOM Document object and load this XML file.

ii) Get the output of this Document to the browser.

iii) Save this [.XML] document in another format i.e. in [.doc]

B) Write a XML Script to print the names of the student present in “Student.xml” file

Q.3 Android:

A) Create a Simple Application Which Send —Helloo message from one activity to another with help of Button (Use Intent). [25M]

Q.4 Viva [10M]

Q.5 Lab Book [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

- A) Write a JDBC program to displays the details of employees (eno, ename, department, sal) whose department is “Computer Science”. [15M]
B) Write a java program to simulate traffic signal using multithreading. [15M]

Q.2. 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. [25M]

OR

Advance PHP:

- A) Write a script to create “cricket.xml” file with multiple elements as shown below. [25M]

```
<CricketTeam>
<Team country=”Australia”>
<Player> </Player>
<runs> </runs>
<wicket> </wicket>
</Team>
</CricketTeam>
```

Q.3. Android:

- A) Create an Android Application that Demonstrate DatePicker and DatePickerDialog. [25M]



Q.4 Viva [10M]

Q.5 Lab Book [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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) [15M]

Q2. 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. [25M]

OR

PHP:

A) Create an xml file which should comprise the following: [25M]

```
<cricket>
<player>Sachin Tendulkar </player>
<runs>2000 </runs>
<wickets>100 </wickets>
<noofnotout>20</noofnotout>
</cricket>
```

For atleast 5 players.

Write a PHP script to display the details of players who have scored more than 1200 runs andat least 50 wickets.

Q.3 Android:

A) Create a Simple Application, which read a positive number from the user and display its factorial value in another activity. [25M]

Q.4 Viva

[10M]

Q.5 Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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

Q.2. Node JS:

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

- a. Concat
- b. Compare
- c. Copy

[25M]

OR

Advance PHP:

A) Create student table as follows Student (sno, sname, standard, Marks, per) **[15M]**.

B) Write AJAX script to select the student name and print the students details of particular standard. **[25M]**

Q.3. Android:

A) Create an Android App, it reads the Students Details (Name, Surname, Class, Gender, Hobbies, Marks) and Display the all information in another activity in table format on click of Submit button **[25M]**

Q.4 Viva **[10M]**

Q.5 Lab Book **[10M]**

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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) [15M]

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. [15M]

Q2. 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. [25M]

OR

Advance PHP

A) Create employee table as follows EMP(eno,ename, designation,salary).Write a AJAX program to select the employees name and print the selected employee's details [25M]

Q.3 Android:

A) Create an Android Application to display satellite view of current location using Google Map. [25M]



Q.4 Viva [10M]

Q.5 Lab Book [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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.

[15M]

B) Write a Multithreading program in java for Racing Car.

[15M]

Q.2. 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.

[25M]

OR

Advance PHP

A) Consider the following relational database Project(P_Group, Project_Title) Student (Seat_no,Name, Class, P_Group_No)

[25M]

B) Write an AJAX Script to accept project title and display the list of students who are working in a particular project.

Q.3. Android:

A) Create an Android Application that will change color of the College Name on click of Push Button and change the font size, font style of text view using xml.

[25M]



Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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. [15M]

Q.2. 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. [25M]

OR

Advance PHP

A) Write a AJAX script to get player details from XML file when the user select player name. Create XML file o store details of player(name, country,wickets and runs) [25M]

Q.3. Android:

A) Create an Android Application to find the factorial of a number and Display the Result on Alert Box. [25M]



Q.4. Viva

[10M]

Q.5 Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

- A) Write a JDBC program to delete the records of employees whose names are starting with 'A' character. [15M]
- B) Write a Multithreading program in java using Runnable interface to display a bouncing ball on an Applet. [15M]

Q.2. Node JS:

- A) Create a Node.js file that writes an HTML form, with an upload field [25M]

OR

Advance PHP

- A) Consider the following entities and their relationships. [25M]

Movie(movie_no, movie_name, release_year)

Actor(actor_no, name)

Relationship between actor and movie is many to many with attribute rate in Rs.

Create a RDB in 3NF. With using three radio buttons (accept, insert, update)

Write an AJAX script to accept actor name and display names of movies in which he has selected.

Q.3. Android:

- A) Create an Android Application to find the factorial of a number and Display the Result on Alert Box. [25M]



- Q.4 Viva** [10M]

- Q.5 Lab Book** [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

Q.1. Advance Java

- A) Write a JDBC program to count the number of records in table. (Without using standard method) [15M]
- B) Write a Multithreading program in java for bouncing ball. For each bounce change the color of ball randomly. [15M]

Q.2. Node JS:

- A) Create a Node.js Application to download jpg image from the Server. [25M]

OR

Advance PHP

- A) Create student registration form. Accept the student details and display details in the next page. (Use sticky form concept). [25M]

Q.3. Android:

- A) Create an Android Application to accept two numbers and find power and Average. Display the result on the next activity on Button click. [25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

A) Write a JDBC program to remove “percentage” column from student (rno, sname, percentage) table. [15M]

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

Q2. Node JS:

A) Create a Simple Web Server using Node.js that shows the college information. [25M]

OR

Advance PHP

A) Write an Ajax code to print the content of “MyFile.dat” on clicking on fetch button.
The data fetches from the server using Ajax Technique. [25M]

Q.3. Android:

A) Create Android Application for performing the following operation on the table Customer (id, name, address, phno). (use SQLite database or other)

- i) Insert New Customer Details.
- ii) Show All the Customer Details on Toast Message.

[25M]

Q.4. Viva [10M]

Q.5. Lab Book [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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). [15M]

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) [15M]

Q.2. Node JS:

A) Using Node.js create a User Login System. [25M]

OR

Advance PHP

A) Write AJAX script to read contact.dat file and print the content of a file in tabular form when the user clicks on print button. Contact.dat file contains srno, name, residence no, mobile no. (Enter at least 3 records in contact.dat file) [25M]

Q.3. Android:

A) Develop an Android application that create custom Alert Dialog containing Friends Name and on Click of Friend Name Button greet accordingly. [25M]



Q.4. Viva [10M]

Q.5. Lab Book [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

[15M]

B) Write a Socket program in java for simple stand alone chatting application.

[15M]

Q.2. Node JS:

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

[25M]

OR

Advance PHP

A) Create a web application that contains Voters details and check proper validation for (name, age and nationality) as Name should be in uppercase only, age should not be less than 18 years and Nationality should be Indian.(use HTML-AJAX-PHP)

[25M]

Q.3. Android:

A) Design Following Screens using Table Layout. Display the entered text using Toast.

[25M]



Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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)

[15M]

Q.2. 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.

[25M]

OR

Advance PHP

A) Write PHP script using AJAX concept to check if username and password are valid or invalid. (Use database to store username and password)

[25M]

Q.3. Android:

A) Create an Android Application to perform Zoom In, Zoom Out operation and display Satellite view, on Google Map.

[25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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. [15M]

Q.2. Node JS:

A) Using Nodejs create a SY BBA(CA) Teachers Profile System. [25M]

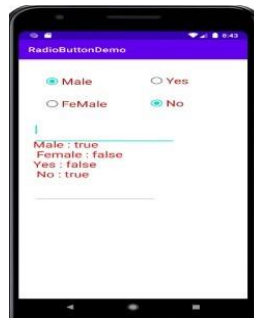
OR

Advance PHP

A) Write PHP program to select list of subjects from list box and display the selected subject information on next page. (Use sticky multivalued parameters) [25M]

Q.3. Android:

A) Create an Android Application that Demonstrate Radio Button [25M]



Q.4. Viva [10M]

Q.5. Lab Book [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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. [15M]

Q.2. Node JS:

A) Create a Node.js file that Select all records from the "Employee" table, and Update the salary of the given Eno. [25M]

OR

Advance PHP

A) Write a PHP program to accept two strings from the user and check whether the entered strings are matching or not. Use the AJAX concept. [25M]

Q.3. Android:

A) Create an Android Application that Demonstrate ListView and Onclick of List Display the Toast. [25M]



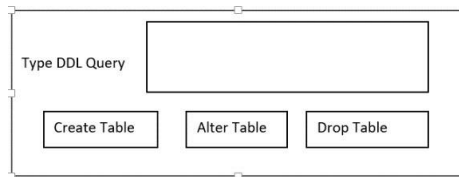
Q.4. Viva [10M]

Q.5. Lab Book [10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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. [15M]
- B) Write a JDBC application using swing for the following: [15M]



Q.2. Node JS:

- A) Using Node.js display the Employee details order by salary in Table format. [25M]

OR

Advance PHP

- A) Write a script to create a XML file “University.xml” The elements details of the university.xml file are as follows. [25M]

```
<Univ>
<UName> --- </UName?
<City>---</City>
<Rank> -- </Rank>
</Univ>
```

- 1) Store the details of atleast 3 universities.
- 2) Link the “University.xml” file to css and get well formatted output as follows.
 - i) UName : Color :black
Font-family : copperplate Gothic Light;
Font-size : 16;
Font : Bold;
 - ii) City and Rank : Color :Yellow
Font-family : arial;
Font-size : 12;
Font : Bold;

Q.3. Android:

- A) Write a program to search a specific location on Google Map. [25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

Q.1. Advance Java:

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

Q.2. Node JS:

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

[25M]

OR

Advance PHP:

- A) Write a PHP script to generate an XML in the following format

[25M]

```
<?xml version = "1.0"?>
<BookStore>
<Books>
<PHP> --- </PHP>
<title>Programming PHP</title>
<publication>O'Relly</publication>
<price>800</price>
</PHP>
<PHP> --- </PHP>
<title>Beginners PHP</title>
<publication>WROX</publication>
<price>900</price>
</PHP>
</Books>
</BookStore>
```

Add more than 5 books details. Display details of book by selecting publication of book from user.

Q.3. Android:

- A) Create an Android App with Login Screen. On successful login, gives message go to next Activity (Without Using Database& use Table Layout).

[25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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.

[15M]

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

[15M]

Q.2. Node JS:

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

[25M]

OR

Advance PHP:

A) Write a PHP program to read the XML document “Stock_list.xml” (fruits and
vegetables) which creates XML document and parse the XML data into an array.

[25M]

Q.3 Android:

A) Create Android application to send email with
attachment.

[25M]

Q.4 Viva

[10M]

Q.5 Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

- A) Write a JSP program to display the details of Hospital (HNo, HName, Address) in tabular form on browser. [15M]
- B) Write a Socket program in java for chatting application. (Use AWT) [15M]

Q.2. Node JS:

- A) Write Node.js application containing an event handler to open and read the contents of a file. [25M]

OR

Q.2. Advance PHP:

- A) Create a xml file which gives details of movies available in “Venus CD Store” fro following categories. a.Classical b.Action c.Horror
Elements in each category are in following format

[15M]

```
<Category>
<Movie Name>----</ Movie Name >
<ReleaseYear>---</ReleaseYear>
<ActorName>---</ActorName>
</Category>
```

Save the file with the name “movies.xml”

Q.3. Android:

- A) Design following-add a border to an Android Layout

[25M]



Q.4 Viva

[10M]

Q.5 Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

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. ~~Program should not allow duplicate cookies to be written.~~ [15M]

Q.2. Node JS:

A) Using Node.js create an application that shows S Y BBA(CA) course structure. [25M]

OR

Q.2. Advance PHP:

A) Write a script to create a XML file named "Course.xml" [25M]

```
<Course>
<Computer Science>
<Student name>---</Student name>
<Class name>---</Class name>
<percentage>---</percentage>
</Computer Science>
</Course>
```

Store the details of 5 students who are in SYBBA(CA)

Q.3. Android:

A) Create following Vertical Scroll View Creation in Android. [25M]



Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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.

[15M]

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 Prepared Statement Interface)

[15M]

Q.2. Node JS:

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

[25M]

OR

1)Yoga 2)Story 3)Technical

Elements in each category are in following format

<Book>

<BookTitle>---- </BookTitle>

<BookAuthor>--- </BookAuthor>

<BookPrice> ---</BookPrice>

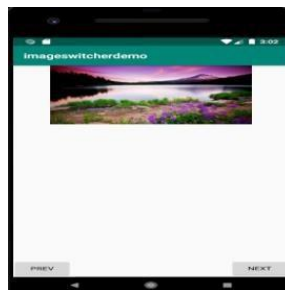
</Book>

Save the file as "Bookcategory.xml"

Q.3. Android:

A) Create an Android Application to Construct image switcher using setFactory().

[25M]



Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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.

[15M]

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.

[15M]

Q.2. 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.

[25M]

OR

Advance PHP:

A) Write an application that reads “Sports.xml” file into simple XML object. Display attributes and elements. (Hint Use simple_xml_load_file() function)

[15M]

Q.3. Android:

A) Write an Android application to accept two numbers from the user, and displays them, but reject input if both numbers are greater than 10 and asks for two new numbers.

[25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

[15M]

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)

[15M]

Q.2. Node JS:

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

[25M]

OR

Advance PHP:

A) Write a script to create XML file named “college.xml”

[15M]

The element details of college.xml are:

```
<College>
<Cname>---</Cname>
<City>---</City>
<Rank>---</Rank>
</College>
```

Display at least 3 college Information

Q.3. Android:

A) Write an Android code to merge given two Array/List

[25M]

The image shows a screenshot of an Android application interface. It features three text input fields stacked vertically, each with a label to its left: "List 1", "List 2", and "List 3". Below these fields is a rectangular button with the text "Merge". The input fields are currently empty.

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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.

[15M]

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.

[15M]

Q.2. Node JS:

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

[25M]

OR

Q.2. Advance PHP:

A) Write a script to create “vehicle.xml” file with multiple element as given below.

```
<Vehicle>
<Type = Two Wheeler>
<Vehicle Name>----</Vehicle Name>
<Company>---</Company>
<Color>---</Color>
<Average>---</Average>
</Type>
</Vehicle>
```

Also add type=”Four Wheeler” and its elements.

Q.3. Android:

A) Create a Simple calculator. (Use Linear Layout)



[25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

Q.1. Advance Java:

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

[15M]

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

[15M]

Q.2. Node JS:

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

[25M]

OR

Advance PHP:

A) Write a simple PHP program which implements AJAX for addition of two numbers.

[25M]

Q.3. Android:

A) Write an Android Application to Change the Image Displayed on the Screen

[25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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

[15M]

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.

[15M]

Q.2. 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.

[25M]

OR

Advance PHP:

A) Write a simple PHP program which implements AJAX for factorial of a number.

[25M]

Q.3. Android:

A) Create an Android Application to perform following string operation according to user selection of radio button.

[25M]

1. Upper Case
2. Lower Case

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

Q.1. Advance Java:

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

[15M]

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.

[15M]

Q.2. Node JS:

A) Using Node.js create a matrimonial portal.

[25M]

OR

Advance PHP:

A) Write an Ajax program to display list of games stored in an array on Clicking OK button.

[25M]

Q.3. Android:

A) Write an Android Program to Demonstrate Date Picker Dialog in Android

[25M]

Q.4 Viva

[10M]

Q.5 Lab Book

[10M]

MES Garware College of Commerce
Lab Course: (CA-606) Computer Laboratory Based on
B4-21/601, B4-21/602 and B4-21/604 (6 credit)
Code: B4-21/606

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.

[15M]

B) Write a menu driven java program for the following:

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

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

Q.2. 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.

[25M]

OR

Advance PHP:

A) Write a PHP script using AJAX concept to develop a user friendly and interactive search engine (like a google search engine)

[25M]

Q.3. Android:

A) Create a Simple Application Which Shows Greeting information to User.

[25M]

Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

MES Garware College of Commerce
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Code: B4-21/606

Q.1. Advance Java:

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

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

Q.2. Node JS:

A) Write Node.js application containing an event handler to open and read the contents of a file.. [25M]

OR

Q.2. Advance PHP:

A) Write a PHP program to create a simple distance calculator that accepts distance in meters from user. Convert it to centimetres or kilometres according to user preference. Use radio button and AJAX. [25M]

Q.3. Android:

A) Create an Android Application that Demonstrate Custom ListView which shows the BookName and Author Name [25M]



Q.4. Viva

[10M]

Q.5. Lab Book

[10M]

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