JAI HIND COLLEGE
BASANTSING INSTITUTE OF SCIENCE
&
J.T.LALVANI COLLEGE OF COMMERCE
(AUTONOMOUS)

"A" Road, Churchgate, Mumbai - 400 020, India.

Affiliated to
University of Mumbai

Program :T.Y.B.Voc

Proposed Course :T.Y.B.Voc Software Development

Credit Based Semester and Grading System (CBCS) with effect from the academic year 2018-19

T.Y.B.Voc Software Development Syllabus

Academic year 2018-2019

Semester <VI>			
Course Code	**Course Title**	**Credits**	**Lectures /Week**
	General Component		
SBSD601	International Finance	3	3
SBSD602	Multimedia-II	3	3
SBSD603	Reasoning Aptitude and Placement Orientation	3	3
SBSD604	Economic Analyses & Data Analytics	3	3
	Skill Component	3	3
SBSD605	Artificial Intelligence	3	3
SBSD606	Physical Computing and IoT Programming	3	3
SBSD607	Emerging Technologies	3	3
SBSD608	Project	1.5	3
SBSD605PR	Artificial Intelligence Practical	1.5	3
SBSD606PR	Physical Computing and IoT Programming Practical	1.5	3
SBSD607PR	Emerging Technologies Practical	1.5	3

Semester VI – Theory

Course: SBSD601	**Course Title: International Finance(Credits :03Lectures/Week:03)**	
	Objectives: ➢ Stabilization of World Economy-Analysis of Financial sector onglobal scale, development of new financial methods that affect the regional finacial system and facilitates it'sintegration. ➢ Emergingissues ➢ International monetarysystems **Outcomes:** ➢ Apply knowledge of foreign exchange hedging to identify andmanage the foreign exchange risks faced by globally activefirms. ➢ Demonstrate the ability to work in a team setting to coordinate analysis of a case study to arrive at a sound financial decision regarding an issue in capital raising and internationalvaluation.	
Unit I	Meaning, scope, importance of international finance. Emerging issues in International finance in a globalized world economy. Relationship/ role of BOP with International finance.	**15 L**
Unit II	Brief overview of international monetary system – Gold standard, Bretton Woods system, Fixed and flexible exchange rates,current exchange rateregimes.	**15 L**
Unit III	Foreign exchange Mares – meaning, functions and structure of forex markets. Types of transactions, exchange rates – meaning and factor determinants. Forex quotations- spot and forward and arbitrage.	**15 L**
Unit-IV	World Financial markets and institutions , euro currency markets- origin – Euro bonds.	**15 L**

Textbook:

1. Maurice Obstfeld and K. Rogoff (1996): Foundations of International Macroeconomics.MIT.
2. F. Rivera-Batiz and L. Rivera-Batiz (1994): International Finance and Open Economy Macroeconomics, 2nd edition. Prentice Hall.

Additional References:

1. Apte, P.G., .(4th Ed). International Financial Management, TMH Publication.
2. Eun, &Resnick.,.(4th Ed). International Financial Management, TMH Publication.
3. Olivier Blanchard (1996): Macroeconomics. Prentice Hall.
4. Maurice Obstfeld and K. Rogoff (1996): Foundations of International Macroeconomics.MIT.
5. F. Rivera-Batiz and L. Rivera-Batiz (1994): International Finance and Open Economy Macroeconomics, 2nd edition. Prentice Hall.

Course: SBSD602	Course Title: Multimedia-II (Credits :03Lectures/Week:03)	
	Objectives: ➢ Learning Advance Corel Draw tools,photoshop. ➢ Animation using abodeflash **Outcomes:** ➢ Students can create ads or collateral for print or for the web usingcorel draw and create animations using adobeflash	
Unit I	**Advance Corel Draw :- Importance & Usage various Interactive tool.** • How to apply Interactive extrude effect to an object withits options. • How to select color from one object & fill in otherobject. • How is interactive mesh tool different from interactive filltool. • Explain various option of Outline & Filltool. • Difference between Duplicate &Clone. • Use of Copy Propertiesfrom. • Use of Transformationtool. • Various options of Arrangingorder. • Difference between Combine &group. • Use of Perspective inCorelDraw. • How to apply Power clip effect to an importedimage. • Various ways of adjusting colors on animage. • At the end they can able to make Layout for Poster, Menu, Broachers, Leaflets, Pamphlets etc.	**15 L**
Unit II	Advance Photoshop:- Navigating the Workspace • The MenuBar • The StatusBar • TheToolbox • The Palettes Working withDocuments • Navigator Palette & HandTool • New View &Duplicate • Image Size &Resolution • Image Size DialogBox • Canvas Size • CropTool • SavingImages Image Modes & Color Selection • The ColorPicker • Color & SwatchPalettes • Eyedropper • Info Palette Selections • Marquee SelectionTools • Lasso & Wand SelectionTools	**15 L**

	• Selection ToolPractice • TransformingSelections • Quick MaskMode • Transformingimages	
Unit III	**Layers and Mask** • Intro toLayers • The LayersPalette • Move, Copy & duplicateLayers • LayerMask • Clipmask **Adding and Working with Type** • Working With TypeIntroduction • The TypeTool • Type Palettes and TextWarping **Painting Tools** • Intro, Paint Bucket and FillCommand • Gradient, Pattern and LineTools • Brushes • EraserTools **Saving & exporting** • Saving asPSD • Exporting as PDF, GIF, JPG &PNG • At the end they can able to make Layout for Advertisement in Magazine, Newspaper, Hoardingsetc	**15 L**
Unit-IV	**Adobe Flash** • Drawing Tool barintroduction • Timeline Introduction • Introduction to Different Symbols, Libraryetc. • Introduction to ClassicAnimation • Introduction to ShapeAnimation • Introduction to Frame by FrameAnimation • Introduction to Masking Techniques in Flashetc	**15 L**

Textbook:

1. Adobe PhotoshopCS6 Bible: The Comprehensive, Tutorial Resource PB by DayleyLD Wiley.
2. Exploring Adobe Flash CS6 PB by Tickoo JWiley.
3. Adobe Flash Professional CC Classroom in a Book PB by Adobe Creative Team Pearson.

Course: SBSD603	Course Title: Reasoning Aptitude and Placement Orientation (Credits :03Lectures/Week:03)	
	Objectives: ➢ Ability to use numbers and mathematical concepts to solvemathematical problems ➢ Ability to analyse the data using datainterpretation **Outcomes:** ➢ Will be able to analyse data, understanding technicalreports.	
Unit I	PICTURE REASONING- In this section, a series of pictures are given which may consist of picture series, picture analogy or picture classification, STATEMENT REASONING- In this section, sequence questions like seating arrangement or money distribution or height arrangement are given. A set of five questions are based directly on the statements given.	
Unit II	DATA INTERPRETATION -This section consists of a direct sequence of 5 questions based on the data which is provided in the form of table charts, bar charts, pie charts or line charts. DATA SUFFICIENCY- Here a set of two statements are given followed by 5 options which satisfy the answer for the statements. You have to decide which option best suits the answer.	
Unit III	ANALYTICAL PROBLEMS-This section will have case studies and you need to mark options from the given solutions and provide analysis for the appropriate solution, RELATION PROBLEM - This section consists of questions which are similar to the sets and relations like students with biology, maths, physics and chemistry, maths and biology, only physics, etc., and questions related as such	
Unit-IV	SYLLOGISM -This section consists of statement followed by two conclusions. We need to pick out from 5 options which suits the best answer, COMPREHENSION & TECHNICAL WRITING-In this section questions will test your comprehension and understanding of technical reports.	

Textbook:

1. Goleman, D. (1996) Emotional Intelligence: Why it Can Matter More Than IQ, Bloomsbury Publishing

Additional References:

1. Goleman, D. (2007) Social Intelligence: The New Science of Human Relationships, Arrow.
2. Meah, M. (2011) Competency Questions Made Easy,Sapere Media.
3. Povah, N. &Povah, L,.(UK edn) (2009). Succeeding at Assessment Centres for Dummies, John Wiley & Sons.

Course: SBSD604	Course Title: Data Analytics (Credits :03 Lectures/Week:03)	
	Objectives: ➢ Discuss the overall process of how data analytics isapplied ➢ Discuss how data analytics can be used to better address and identifyrisks ➢ Demonstrate the power of data analytics using casestudies **Outcomes:** ➢ Obtain, clean/process and transformdata. ➢ Analyze and interpret data using an ethically responsibleapproach. ➢ Use appropriate models of analysis, assess the quality of input, derive insight from results, and investigate potentialissues.	
Unit 1.	Statistical Techniques Different types of data, Frequency Distributions, Measures of central tendency and dispersion, Basic Probability, Normal Distribution, Central Limit Theorem, Hypothesis Testing	
Unit 2	Regression Simple and Multiple Linear Regression, R2 and Adj R2 , ANOVA, Interpretation of coefficients, Dummy Variables, Residual Analysis, Outliers, Logistic Regression, Assumptions, Logistic Function, Chi-Square, -2 Log Likelihood, Classification Table, Interpreting Coefficients, Dependent Variable Prediction	
Unit 3	Forecasting (Time Series) Time Series vs. Causal Models, Moving Average, Exponential Smoothing, Trend, Seasonality, Cyclicity, Causal modeling using linear regression, Forecast Accuracy	
Unit 4	Data Mining Techniques Market Basket Analysis, Apriori, FPGrowth, Evaluation Methods: Lift, Kulc, IR, Chi –Square, Classification, Decision Tree Induction, Bayes Methods, Rule-Based Classification, Model Evaluation and Selection, Ensemble Approaches, Clustering, Partitioning Methods, Hierarchical Methods, Density-Based Methods, Grid-Based Methods, Evaluation of Clustering	

Textbook:

1. Sheldon M. Ross, (4thedn)(2009). Introduction to Probability and Statistics for Engineers and Scientists, Academic Press.
2. Madhavan, Samir,,(2015). Mastering Python for Data Scienc,Packt.

Additional References:

1. Cotton, Richard,. (2013). Learning , O'Reilly.
2. Dalgaard, Peter,. (2008).Introductory statistics with R, Springer Science & Business Media.
3. Everitt, Brain S.,(Second Edition)(2014). Handbook of Statistical Analysis Using R, Second Edition, 4 LLC.

Course: SBSD605	Course Title: Artificial Intelligence (Credits :03 Lectures/Week:03)	
	Objectives: ➢ Know the three areas of research of AI, and give examples of problems from eacharea. ➢ Understand how depth first, breadth first, and bi-directional searches areperformed. **Outcomes:** ➢ Explain how Artificial Intelligence enables capabilities that arebeyond conventionaltechnology ➢ Ability to apply Artificial Intelligence techniques for problemsolving	
UNIT I	**Introduction:** What is Artificial Intelligence? Foundations of AI, history, the state of art AI today. **Intelligent Agents:** agents and environment, good behavior, nature of environment, the structure of agents	**15 L**
UNIT II	**Solving Problems by Searching:** Problem solving agents, examples problems, searching for solutions, uninformed search, informed search strategies, heuristic functions. **Beyond Classical Search:** local search algorithms, searching with non-deterministic action, searching with partial observations, online search agents and unknown environments.	**15 L**
UNIT III	**Adversarial Search:** Games, optimal decisions in games, alpha-beta pruning, stochastic games, partially observable games, state-of-the-are game programs. **Logical Agents:** Knowledge base agents, The Wumpus world, logic,propositional logic, propositional theorem proving, effective propositional model checking, agents based on propositional logic.	**15 L**
UNIT IV	**First Order Logic:** Syntax and semantics, using First Order Logic, Knowledge engineering in First Order Logic. **Inference in First Order Logic:** propositional vs. First Order, unification and lifting, forward and backward chaining, resolution. **Planning:** Definition of Classical Planning, Algorithms for planning as statespace search, planning graphs, other classical planning approaches, analysis of planning approaches, Time, Schedules and resources, hierarchical planning, Planning and Acting inNondeterministic Domains, multiagentplanning **KnowledgeRepresentation:** Categories and Objects, events, mental events and objects, reasoning systems for categories, reasoning with default information, Internet shopping world	**15 L**

Textbook:

1. Artificial Intelligence: A Modern ApproachStuartRussel and Peter Norvig Pearson Publisher, 3rdEdition.
2. A First Course in Artificial Intelligence, Deepak Khemani,TMH
3. Artificial Intelligence: A Rational Approach, Rahul Deva, Shroffpublishers
4. Artificial Intelligence, Elaine Rich, Kevin Knight and ShivashankarNai,TMH
5. Artificial Intelligence & Soft Computing for Beginners, AnanditaDasBhattacharjee

Course: SBSD606	Course Title:(Credits :03 Lectures/Week:03) Physical Computing and IoT Programming	
	Objectives: ➢ **To learn about SoC architectures; Learn how Raspberry Pi.Learn to program RaspberryPi.** ➢ **Implementation of internet of Things andProtocols.** **Outcomes:** ➢ **Enable learners to understand System On ChipArchitectures.** ➢ **Introduction and preparing Raspberry Pi with hardwareand installation.** ➢ **Learn physical interfaces and electronics of Raspberry Piand program them usingpractical's** ➢ **Learn how to make consumer grade IoT safe and secure withproper use ofprotocols.**	
Unit I	SoC and Raspberry Pi System on Chip: What is System on chip? Structure of System on Chip. SoC products: FPGA, GPU, APU, Compute Units. ARM 8 Architecture: SoC on ARM 8. ARM 8 Architecture Introduction Introduction to Raspberry Pi: Introduction to Raspberry Pi, Raspberry Pi Hardware, Preparing your raspberry Pi. Raspberry Pi Boot: Learn how this small SoC boots without BIOS. Configuring boot sequences and hardware.	**15L**
Unit II	Programming Raspberry Pi Raspberry Pi and Linux: About Raspbian, Linux Commands, Configuring Raspberry Pi with Linux Commands Programing interfaces: Introduction to Node.js, Python. Raspberry Pi Interfaces: UART, GPIO, I2C, SPI Useful Implementations: Cross Compilation, Pulse Width Modulation, SPI for Camera.	**15L**
Unit III	Introduction to IoT: What is IoT? IoT examples, Simple IoT LED Program. IoT Service as a Platform: Clayster, Thinger.io, SenseIoT, carriots and Node RED. IoT Security and Interoperability: Risks, Modes of Attacks, Tools for Security and Interoperability.	**15L**
Unit IV	IoT Data Link Layer and Network Layer Protocols: PHY/MAC Layer(3GPP MTC, IEEE 802.11, IEEE 802.15), Wireless HART,Z-Wave, Bluetooth Low Energy, Zigbee Smart Energy DASH7 Network Layer:IPv4, IPv6, 6LoWPAN, 6TiSCH,ND, DHCP, ICMP, RPL, CORPL, CARP Transport layer protocols : Transport Layer (TCP, MPTCP, UDP, DCCP, SCTP)-(TLS, DTLS) Session layer: Session Layer-HTTP, CoAP, XMPP, AMQP, MQTT Service layer protocols: Service Layer - oneM2M, ETSI M2M, OMA, BBFs	**15L**

Textbook:

1. Learning Internet of Things, Peter Waher, PacktPublishing(2015)
2. Mastering the Raspberry Pi, Warren Gay,Apress(2014)
3. From Machine-to-Machine to the Internet of Things: Introduction to a New Ageof Intelligence, Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, StamatisKarnouskos, David Boyle,1st Edition, Academic Press,2014.

Course: SBSD607	Course Title: Emerging Technologies(Credits :03Lectures/Week:03)	
	Objectives: Understand MongoDB as a data store. Understand NoSQL and its difference with SQL. Be comfortable with Mongo's query and update languages. Common use-cases and architectures of MongoDB. MongoDB with java and python. Understanding MongoDB Data Model. Query Mongo using Mongo's JSON-based query language. **Outcomes:** ➢ Ability to understand the concepts behind MongoDB, NoSQL andJSON. ➢ Executing MongoDB queries, connecting and interacting with MongoDBusingjava andpython. ➢ Creating and parsing and persistingJSON. ➢ Importing and exporting JSON file withMongoDB.	
Unit I	**Introduction to Data Warehousing:** Introduction, Necessity,Framework of the datawarehouse, options, developing datawarehouses, end points. **Data Warehousing Design Consideration and Dimensional Modeling:** Defining Dimensional Model, Granularity of Facts, Additivity of Facts, Functional dependency of the Data, Helper Tables, Implementation many to-many relationships between fact and dimensional modelling. **Extract, Transform, and Load Basics:** ETL, Manual ETL processes, Staging, To stage or not to stage, Configuration of a staging area, Mappings and operators in OWB, The canvas layout, OWB operators, Source and target operators, Data flow operators, Pre/post-processing operators	15 L
Unit II	**NoSQL:** SQL, NoSQL, Definition, A Brief History of NoSQL, ACID vs. BASE, CAP Theorem, The BASE, NoSQL Data Types, Advantages of NoSQL, Disadvantages of NoSQL, SQL vs. NoSQL Databases, Categories of NoSQL Databases. **Introducing MongoDB:** History, MongoDB Design Philosophy, Speed, Scalability, and Agility, Non-Relational Approach, JSON-Based Document Store, Performance, Features and Applications, Comparison with SQL. **The MongoDB Data Model:** The Data Model, JSON and BSON, The Identifier, Capped Collection, Polymorphic Schemas, Object-Oriented Programming.	15 L
Unit III	**Querying MongoDB**:Basic Querying, Data types, Create and Insert, Explicitly Creating Collections, Inserting Documents Using Loop, Update, Delete, Read, Using Indexes, Stepping Beyond the Basics, Using Conditional Operators, Regular Expressions, MapReduce,Aggregation. **Data Management in MongoDB and Architecture:**Core Processes,	15 L

	mongod, mongo, mongos, MongoDB Tools, Standalone Deployment, Replication, Master/Slave Replication, Replica Set, Implementing Advanced Clustering with Replica Sets, Sharding, Sharding Components, Data Distribution Process, Data Balancing Process, Operations, Implementing Sharding, Controlling Collection Distribution. **MongoDB Use Cases:**Performance Monitoring, Schema Design, Operations, Sharding, Content Management.	
Unit IV	**MongoDB Best Practices**:- Managing indexes:-Store data as a single document, Avoid creating large documents Avoid long field names. MongoDB Setup and Configuration, Continuous Availability with MongoDB, Managing MongoDB, Security for MongoDB. **JSON:** Introduction, JSON Grammar,Values and Tokens, Syntax, JSON comparision with XML, Data Types, Objects, Arrays, Creating JSON, JSON Object, Parsing JSON, JSON Stringify, Persisting JSON. Importing and exporting JSON files with MongoDB.	15 L

Textbook:

1. Data Warehousing by SoumendraMohanty, TataMcGrawHill
2. Practical MongoDB by Shakuntala Gupta, Edward, NavinSabharwal,Apress
3. Next GenerationDatabases by Guy Harrison,Apress
4. Beginning JSON, Ben Smith,Apress

Course: SBSD608	Course Title: Project (Credits :03 Lectures/Week:03)	
	Objectives: ➢ Learning through practice is a very good way of crystallizing inyour mind what you may havelearnt. ➢ A management level post graduate course is of no use if you areunable to apply theoretical knowledge in practicalscenarios. ➢ Project work is one such tool- It enables you to apply your conceptual knowledge in a practical situation and to learn the art of conducting a study in a systematic way and presenting its findings in a coherentreport. ➢ A proper application towards this exercise should help you in your professionallife. **Outcomes:** ➢ Students can deal with small or a big issue in an organization,the problem can be from any discipline ofmanagement. ➢ Analysis and interpretation of data leading to validconclusions.	
Unit I	**Investigation** Project fixing, Synopsis **Analysis** Project history**,** Requirement Gathering**,** Objective And Scope of Project**,** Problems With Existing System**,** Advantage Of Proposed System**,** Feasibility Study**,** Cost Benefit Analysis**,** Requirement Specification, Tools & Technology	
Unit II	**Design Phase** Detailed Life Cycle Of Project(Logical Design), Class Diagram, E-R Diagram, Event Table, Use Case Diagram **Coding Phase** Data base Design (with proper records), Forms, Modules Design, Validating Forms/ applications	
Unit III	**Testing Phase** Module Testing/ unit testing, Integration Testing, System Testing, Acceptance Testing **Maintenace and Evaluation** System MaintainaceAnd Future Enhancement, User Manual/ help report	
Unit IV	**Review and Black Book**	

Textbook:

1. Modern Systems Analysis and Design; Jeffrey A. Hoffer, Joey F.George, Joseph,S.Valacich;
Pearson Education; Third Edition; 2002.
2. ISO/IEC 12207: Software Life Cycle Process
(http://www.software.org/quagmire/descriptions/iso-iec12207.asp).
3. IEEE 1063: Software User Documentation(http://ieeexplore.ieee.org).

Semester VI – Practical

Course:	**Artificial Intelligence (Credits : 1.5 Practicals/Week: 01)**
SBSD605PR	1. (a) Write a program to implement depth first searchalgorithm. (b) Write a program to implement breadth first searchalgorithm. 2. (a) Write a program to simulate 4-Queen / N-Queenproblem. (b)Write a program to solve tower of Hanoiproblem. 3. (a) Write a program to implement alpha betasearch. (b) Write a program for Hill climbingproblem. 4. (a) Write a program to implement A*algorithm. (b) Write a program to implement AO*algorithm. 5. (a) Write a program to solve water jugproblem. (b) Design the simulation of tic –tac –toe game using min-max algorithm. 6. (a) Write a program to solve Missionaries and Cannibalsproblem. (b) Design an application to simulate number puzzleproblem. 7. (a) Write a program to shuffle Deck ofcards. (b) Solve traveling salesman problem using artificialintelligence technique. 8. (a) Solve the block of Worldproblem. (b) Solve constraint satisfactionproblem 9. (a) Derive the expressions based on Associativelaw (b) Derive the expressions based on Distributivelaw 10. (a) Write a program to derive thepredicate. (b) Write a program which contains three predicates: male, female, parent. Make rules for following family relations: father, mother, grandfather,grandmother, brother, sister, uncle, aunt, nephewand niece,cousin. Question: i. Draw FamilyTree. ii. Define: Clauses, Facts, Predicates and Rules withconjunction anddisjunction

Course: SBSD606PR	Practical Title: Physical Computing and IoT Programming(Credits : 1.5 Practicals/Week: 01)
	1. Preparing Raspberry Pi: Hardware preparation andInstallation 2. Linux Commands: Exploring theRaspbian 3. GPIO: Light the LED withPython 4. Displaying different LED patterns with RaspberryPi. 5. Displaying time over 4 digit 7 segment display using RaspberryPi 6. SPI: Camera Connection and capturing Images usingSPI 7. Interfacing Raspberry Pi withRFID. 8. Node RED: Connect LED to Internet ofThings 9. Visitor monitoring with Raspberry Pi and PiCamera. 10. Create a simple Web server using RaspberryPi

Course: SBSD607PR	Practical Title: Emerging Technologies (Credits : 1.5 Practicals/Week: 01)
	Practical: 1) Installation of the database andOWB 2) Importing the source data structures in Oracle. Design the targetdata structure using Oracle. Create the target structure inOWB 3) Perform the ETLprocess. 4) Generate the different types of reports in usingOracle. 5) Create the Pivot table and Pivot chart using some existing data or create the new data inExcel. 6) MongoDBBasics a) MongoDB query to create and dropdatabase. b) MongoDB query to create, display and dropcollection c) MongoDB query to insert, query, update and deletea document. 7) Executing simple MongoDBqueries- 1) Indexing 2) Limitingrecords 3) Sortingrecords 8. Queries for implementing aggregation inMongoDB. 9. Queries for implementing replication, backup inMongoDB. 10. Connecting Java and python with MongoDB and inserting,retrieving, updating anddeleting. 11. Creating, parsing and persistingJSON. 12. Exporting and Importing JSON files withMongoDB.

Evaluation Scheme

[A] Evaluation scheme for Theorycourses

I. Internal Test- 25 Marks

II. Semester End Examination (SEE)- 75Marks

[B] Evaluation scheme for Practicalcourses

I. Practical Exam (50 Marks)

JAI HIND COLLEGE
BASANTSING INSTITUTE OF SCIENCE & J. T. LALVANI COLLEGE OF COMMERCE.
MUMBAI-400020.

Class: **Paper-**
Subject: **Time**:
Day&Date: **Total Marks :75**

PLEASE READ CAREFULLY THE WARNING PRINTED ON THE ANSWER BOOK IN CONNECTION WITH THE USE TO UNFAIR MEANS.

General Instructions:- 1. All questions are Compulsory
2. Numbers to the right indicate maximum marks
3. Answers to the sub-questions of the same question must be written together.
4. Each question carries 5 marks.

Q1)	**Answer three of the following questions (Based on Unit 1)**	**(15 marks)**
1)		(5)
2)		(5)
3)		(5)
4)		(5)
5)		(5)
6)		(5)
Q2)	**Answer three of the following questions (Based on Unit 2)**	**(15 marks)**
1)		(5)
2)		(5)
3)		(5)
4)		(5)
5)		(5)
6)		(5)
Q3)	**Answer three of the following questions (Based on Unit 3)**	**(15 marks)**
1)		(5)
2)		(5)
3)		(5)
4)		(5)
5)		(5)
6)		(5)
Q4)	**Answer three of the following questions (Based on Unit 4)**	**(15 marks)**
1)		(5)
2)		(5)
3)		(5)
4)		(5)

5)		(5)
6)		(5)
Q5)	**Answer <u>three</u> of the following questions (Based on Unit 1,2,3, 4)**	**(15 marks)**
1)		(5)
2)		(5)
3)		(5)
4)		(5)
5)		(5)
6)		(5)

JAI HIND COLLEGE

BASANTSING INSTITUTE OF SCIENCE & J. T. LALVANI COLLEGE OF COMMERCE.

MUMBAI 400020.

CLASS: **TIME:**

SUBJECT: **DATE:**

SEMESTER VI PRACTICAL EXAMINATION

1) Practical Examination – 50 Marks

1)	a) Questions on Practical programs	(20 marks)
	b) Questions on Practical programs	(20 marks)
	c) Journal	(5 marks)
	d) Viva	(5 marks)