Bachelor of Vocational in Information Technology
B.Voc. (Information Technology)
Scheme of Examination
Session: 2017-18

SEMESTER-I					
Paper Code	Name of Paper	Mode	General Education Credits/Marks	Skill Components Credits/Marks	Total Credits/Marks
BVIT-101	Fundamentals of Computing	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-102	Office Tools and Applications	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-103	Lab-1(Based on BVIT-101 & BVIT-102)	Practical Lab	6 Credits/80 Marks	-------	6 Credits/80 Marks
BVIT-104	Skill Dev. Lab-1	SSC*	-------	18 Credits(as per SSC*)/240 Marks	18 Credits(as per SSC*)/240
Total					**30 Credits/400 Marks**

*As per SSC (Sector Skill Council) Guidelines of UGC
Note: Paper BVIT-103, Practical for External Marks 40 will be conducted by External Examiner appointed by University.

SEMESTER-II					
Paper Code	Name of Paper	Mode	General Education Credits/Marks	Skill Components Credits/Marks	Total Credits/Marks
BVIT-201	Internet and Web Designing	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-202	Programming in C	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-203	Lab-2(Based on BVIT-201 & BVIT-202)	Practical Lab	6 Credits/80 Marks	-------	6 Credits/80 Marks
BVIT-204	Skill Dev. Lab-2	SSC*	-------	18 Credits(as per SSC*)/240 Marks	18 Credits(as per SSC*)/240
Total					**30 Credits/400 Marks**

*As per SSC (Sector Skill Council) Guidelines of UGC

Note: Paper BVIT-203, Practical for External Marks 40 will be conducted by External Examiner appointed by University.

			SEMESTER-III		
Paper Code	**Name of Paper**	**Mode**	**General Education Credits/Marks**	**Skill Components Credits/Marks**	**Total Credits/Marks**
BVIT-301	Operating Systems	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-302	Object Oriented Programming using C++	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-303	Lab-3(Based on BVIT-301 & BVIT-302)	Practical Lab	6 Credits/80 Marks	-------	6 Credits/80 Marks
BVIT-304	Skill Dev. Lab-3	SSC*	-------	18 Credits(as per SSC*)/240 Marks	18 Credits(as per SSC*)/240
			Total		**30 Credits/400 Marks**

*As per SSC (Sector Skill Council) Guidelines of UGC

Note: Paper BVIT-303, Practical for External Marks 40 will be conducted by External Examiner appointed by University.

			SEMESTER-IV		
Paper Code	**Name of Paper**	**Mode**	**General Education Credits/Marks**	**Skill Components Credits/Marks**	**Total Credits/Marks**
BVIT-401	Database Management System	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-402	Visual Basic Programming	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-403	Lab-4(Based on BVIT-401 & BVIT-402)	Practical Lab	6 Credits/80 Marks	-------	6 Credits/80 Marks
BVIT-404	Skill Dev. Lab-4	SSC*	-------	18 Credits(as per SSC*)/240 Marks	18 Credits(as per SSC*)/240
			Total		**30 Credits/400 Marks**

*As per SSC (Sector Skill Council) Guidelines of UGC

Note: Paper BVIT-403, Practical for External Marks 40 will be conducted by External Examiner appointed by University.

SEMESTER-V

Paper Code	Name of Paper	Mode	General Education Credits/Marks	Skill Components Credits/Marks	Total Credits/Marks
BVIT-501	Computer Graphics	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-502	Programming in JAVA	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-503	Lab-5(Based on BVIT-501 & BVIT-502)	Practical Lab	6 Credits/80 Marks	-------	6 Credits/80 Marks
BVIT-504	Skill Dev. Lab-5	SSC*	-------	18 Credits(as per SSC*)/240 Marks	18 Credits(as per SSC*)/240
Total					**30 Credits/400 Marks**

*As per SSC (Sector Skill Council) Guidelines of UGC
Note: Paper BVIT-503, Practical for External Marks 40 will be conducted by External Examiner appointed by University.

SEMESTER-VI

Paper Code	Name of Paper	Mode	General Education Credits/Marks	Skill Components Credits/Marks	Total Credits/Marks
BVIT-601	Advanced Technology	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-602	Artificial Intelligence	Theory	3 Credits/40 Marks	-------	3 Credits/40 Marks
BVIT-603	Lab-6(Based on BVIT-601)	Practical Lab	6 Credits/80 Marks	-------	6 Credits/80 Marks
BVIT-604	Skill-Dev. Major Project	SSC*	-------	18 Credits(as per SSC*)/240 Marks	18 Credits(as per SSC*)/240
Total					**30 Credits/400 Marks**

*As per SSC (Sector Skill Council) Guidelines of UGC and the Major Project will be assigned to the students in the beginning of the semester.
Note: Practical exam for BVIT-603 will be conducted by External Examiner appointed by University.

Maharshi Dayanand University, Rohtak
Bachelor of Vocational in Information Technology
(B.Voc. in Information Technology)

BVIT-101: FUNDAMENTALS OF COMPUTING

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT - I

Introduction: Characteristics, evolution and generations of computers, Basic Computer Organization: Input and Output Unit, Primary and Secondary storage, CPU: ALU, Control Unit, Classification of computers, Number Systems: Binary, Hexadecimal, Octal, Decimal numbers, Floating-point Numbers, Computer codes: BCD and EBCDIC codes, ASCII, Unicode.

UNIT - II

Input/Output & Storage Units: Keyboard, Mouse, Trackball, Joystick, Digitizing tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Lightpen, Touch Screen, Monitors - characteristics and types of monitor -Digital, Analog, Size,Resolution, Refresh Rate, Interlaced / Non Interlaced, Printers & types - Daisy wheel, Dot-Matrix, Inkjet, Laser, Line Printer, Plotter, Sound Card and Speakers

UNIT – III

Memory: Memory speed, access time, waits states, Types of memory, Dynamic and Static RAM, memory chip making, Cache memory, shadow RAM, ROM chips, Reading memory error messages, adding RAM, CPU Registers, Storage fundamentals - Secondary Data Storage and Retrieval methods - Sequential, Direct and Index Sequential, Various Storage Devices – Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks, CD/DVD flash drives Video Disk, Blue Ray Disc

UNIT - IV

Windows OS: Operating system definition and evolution, Types of Operating Systems, Functions of operating systems, Popular Operating Systems, Features of Windows OS, Windows history; Files & Folders operations. Desktop, Recycle Bin, My Computer, My Documents, Windows Explorer, Configuring System Devices: Control Panel, Accessories in Windows.

SUGGESTED READING:

1. Handbook of Computer Fundamentals – Nasib Singh Gill, Khanna Books Publishing Co.(P) Ltd., New Delhi
2. PC Hardware Complete Reference - Craig Zacker & John Rourke, Tata McGraw Hill
3. Inside the PC - Peter Norton, BPB.
4. Foundation of Computing, Sinha P., Sinha P., BPB Publication

Note: Latest and additional good books may be suggested and added from time to time.

BVIT-102: OFFICE TOOLS AND APPLICATIONS

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

MS-PowerPoint: Introduction & area of use; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & its different views; Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists; Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects; Designing & Presentation of a SlideShow; Printing Presentations, Notes, Handouts with print options. Animations and Sounds, Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect. Outlook Express: Features and uses, Configuring and using Outlook Express for accessing e-mails in office.

UNIT-II

MS-Word: Introduction area of use, Menus & Commands; Toolbars & Buttons; Shortcut Menus, Wizards & Templates; Creating a New Document; Different Page Views and layouts; Applying various Text Enhancements; Working with – Styles, Text Attributes; Paragraph and Page Formatting; Text Editing using various features ; Bullets, Numbering, Auto formatting, Printing. Spell Check, Thesaurus, Find & Replace; Headers & Footers ;Inserting – Page Numbers, Pictures, Files, Autotexts, Symbols etc.; Working with Columns, Tabs & Indents; Creation & Working with Tables; Margins & Space management in Document; Adding References and Graphics; Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats.

UNIT – III

MS-Excel: Creating & Saving work book. Structure of Worksheet, entering & editing data, Copying & Moving data, Finding & Replacing data. Filling Data. Sorting data. Formatting Data – Number Style Format, Border & Color, Rotating Texts, Conditional Formatting. Arranging Multiple Workbooks or Windows, Hiding & Unhiding – workbooks, worksheets, rows & columns. Inserting Columns & Rows. Adjusting widths & Heights of Columns & Rows. Copying, moving, inserting, deleting & renaming worksheets in workbooks. Defining, Inserting & deleting Cell or Range Names.

UNIT – IV

Formulas & Functions: Mathematical operators. Creating, changing & copying formulas. Absolute referencing. Functions – Log, Sum, Average, Count, If, Max, Sum If. Date & Time, Database, Text, Maths & Statistical functions. Charts in Excel: Types of charts, Inserting & Modifying charts. File & Print Operations. Linking Worksheets & Workbooks. Creating lists, Using Filters & Subtotals. Recording, running and editing Macros. Data Validation. What-if analysis using Goal seek and scenarios.

SUGGESTED READING:

1. Microsoft Office – Complete Reference – BPB Publication
2. Learn Microsoft Office – Russell A. Stultz – BPB Publication
3. Courter, G Marquis. Microsoft Office 2000: Professional Edition. BPB.
4. Koers, D . Microsoft Office XP Fast and Easy. PHI.
5. Nelson, S L and Kelly, J . Office XP: The Complete Reference. Tata McGraw-Hill.

Note: Latest and additional good books may be suggested and added from time to time.

SEMESTER-II

BVIT-201: INTERNET AND WEB DESIGNING

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Introduction to Internet and World Wide Web: Evolution and History of World Wide Web; Basic features; Web Browsers; Web Servers; Hypertext Transfer Protocol, Overview of TCP/IP and its services; URLs; Searching and Web-Casting Techniques; Search Engines and Search Tools;

UNIT – II

Web Publishing: Hosting your Site; Internet Service Provider; Web terminologies, Phases of Planning and designing your Web Site; Steps for developing your Site; Choosing the contents; Home Page; Domain Names, Front page views, Adding pictures, Links, Backgrounds, Relating Front Page to DHTML. Creating a Website and the Markup Languages (HTML, DHTML).

UNIT – III

Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; Creating Links; Headers; Text styles; Text Structuring; Text colors and Background; Formatting text; Page layouts.

UNIT – IV

Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes; DHTML: Dynamic HTML, Features of DHTML,CSSP(cascading style sheet positioning) and JSSS(JavaScript assisted style sheet), Layers of netscape, The ID attributes, DHTML events.

SUGGESTED READING:

1. Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill.
2. Ramesh Bangia, "Multimedia and Web Technology", Firewall Media.
3. Thomas A. Powell, "Web Design: The Complete Reference" , 4/e, Tata McGraw- Hill

4. Wendy Willard, "HTML Beginners Guide", Tata McGraw-Hill.
5. Deitel and Goldberg, "Internet and World Wide Web, How to Program", PHI.
6. Any other book(s) covering the contents.

Note: Latest and additional good books may be suggested and added from time to time.

BVIT-202: PROGRAMMING IN C

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Overview of C: History of C, Importance of C, Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() Functions, Operators & Expression: Arithmetic, relational, logical, BVSDwise, unary, assignment, shorthand assignment operators, conditional operators and increment and decrement operators, Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity.

UNIT-II

Algorithm development, Flowcharting and Development of efficient Program in C.
Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement.
Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue statement, Nested loops.

UNIT-III

Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions viz. getch(), getche(), getchar(), gets(), output functions viz. putch(), putchar(), puts(), string manipulation functions. User defined functions: Introduction/Definition, prototype, Local and global variables, passing parameters, recursion.

UNIT-IV

Arrays, strings and pointers: Definition, types, initialization, processing an array, passing arrays to functions, Array of Strings. String constant and variables, Declaration and initialization of string, Input/output of string data, Introduction to pointers. Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime.

SUGGESTED READING:

1. Gottfried, Byron S., Programming with C, Tata McGraw Hill
2. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co.,
   New Delhi.
3. Balagurusamy, E., Programming in ANSI C, 4E, Tata McGraw-Hill
4. Jeri R. Hanly & Elliot P. Koffman, Problem Solving and Program Design in C, Addison Wesley.

5. Yashwant Kanetker, Let us C, BPB.
6. Rajaraman, V., Computer Programming in C, PHI.
7. Yashwant Kanetker, Working with C, BPB.

Note: Latest and additional good books may be suggested and added from time to time.

SEMESTER-3

BVIT-301: OPERATING SYSTEMS

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Fundamentals of Operating system: Introduction to Operating System, Operating System functions and Characteristics, historical evolution of Operating System, Types of Operating System- batch, multi-programmed, time-shared, real time, embedded, distributed, network operating system, System Calls, System Programs, interrupt Mechanism.
Process Management: Process concept, Process states, Process Control Block, Operation on processes, Context Switching, Cooperating Processes, Threads.
CPU Scheduling: Basic concepts, Objective, preemptive vs Non-preemptive scheduling, Scheduling criteria, Scheduling algorithms: FCFS, SJF, SRTF, Priority, Round-Robin and Queue Algorithms.

UNIT-II

Interprocess communication: Race conditions, critical sections, problems of mutual exclusion, Peterson's solution.
Deadlocks: Definition, Deadlock Characteristics, Deadlock Prevention, Deadlock Avoidance: Banker's Algorithm, Deadlock Detection and Recovery.

UNIT-III

Basic Memory Management: Definition, Logical and Physical Address map, Memory Management: Contiguous Memory allocation- Fixed and Variable Partition, Internal and External Fragmentation, Compaction. Paging: Page allocation, Hardware support for paging, Disadvantages, Segmentation.
Virtual Memory: Basics, Locality of Reference, Page fault, Working Set, Dirty page/ Dirty bit, Demand Paging, Page replacement Algorithms-FIFO, LRU, MRU, Optimal.

UNIT-IV

File management: File system Structure, Allocation methods: Contiguous allocation, Linked allocation, Indexed allocation.
Device Management: Disk structure, Disk scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK.
Introduction to UNIX: Basic concepts & commands of UNIX.

SUGGESTED READING:

1. Abraham Silberschatz, Peter B. Galvin, " Operating System Concepts", Addison-Wesley
   publishing.Co., 7th. Ed., 2004.
2. William Stallings, "Operating Systems, "Internals and Design Principles", 4th Edition, PH, 2001.
3. Andrew S. Tannenbaum, "Modern Operating Systems", Pearson Education Asia, Second Edition, 2001.

Note: Latest and additional good books may be suggested and added from time to time.

BVIT-302: OBJECT-ORIENTED PROGRAMMING USING C++

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions   will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Object Oriented Concepts: Introduction to Objects and Object Oriented Programming, Encapsulation (Information Hiding), Access Modifiers: Controlling access to a class, method, or variable (public, protected, private, package), Other Modifiers, Polymorphism: Overloading,, Inheritance, Overriding Methods, Abstract Classes, Reusability, Class's Behaviors.
Classes and Data Abstraction: Introduction, Class Scope and Accessing Class Members, Separating Interface from Implementation ,Controlling Access Function And Utility Functions, Initializing Class Objects: Constructors, Using Default Arguments With Constructors, Using Destructors, Classes : Const(Constant) Object And Const Member Functions, Object as Member of Classes, Friend Function and Friend Classes, Using This Pointer, Dynamic Memory Allocation with New and Delete, Static Class Members, Container Classes And Integrators, Proxy Classes, Function overloading.

UNIT-II

Operator Overloading: Introduction, Fundamentals of Operator Overloading, Restrictions On Operators Overloading, Operator Functions as Class Members vs. as Friend Functions, Overloading,<<,>> Overloading Unary Operators, Overloading Binary Operators.
Inheritance: Introduction, Inheritance: Base Classes And Derived Classes, Protected Members, Casting Base- Class Pointers to Derived- Class Pointers, Using Member Functions, Overriding Base –Class Members in a Derived Class, Public, Protected and Private Inheritance, Using Constructors and Destructors in derived Classes, Implicit Derived –Class Object To Base Class Object Conversion, Composition Vs. Inheritance.

UNIT-III

Virtual Functions and Polymorphism: Introduction to Virtual Functions, Abstract Base Classes and Concrete Classes, Polymorphism, New Classes and Dynamic Binding, Virtual Destructors.
 Files and I/O Streams: Files and Streams, Creating a Sequential Access File, Reading Data From A Sequential Access File, Updating Sequential Access Files, Random Access Files, Creating A Random Access File, Writing Data Randomly To a Random Access File. Stream Input/Output Classes and Objects, Stream Output, Stream Input, Unformatted I/O (with read and write), Stream Manipulators, Stream Format States, Stream Error States.

UNIT-IV

Templates & Exception Handling: Function Templates, Overloading Template Functions, Class Template, Class Templates and Non-Type Parameters, Templates and Inheritance, Templates and Friends, Templates and Static Members. Basics of C++ Exception Handling: Try Throw, Catch, Throwing an Exception, Catching an Exception.

SUGGESTED READING:

1. Object oriented Programming with C++ by E Balagurusamy, 2001, Tata McGraw-Hill
2. Computing Concepts with C++ Essentials by Horstmann, 2003, John Wiley
3. The Complete Reference in C++ By Herbert Schildt, 2002, TMH.
4. Programming with C++ By D Ravichandran, 2003, T.M.H

Note: Latest and additional good books may be suggested and added from time to time.

SEMESTER-4

BVIT-401: DATABASE MANAGEMENT SYSTEM

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions   will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT- I

Introduction: Concept & Overview of DBMS, DBMS Vs file processing system, Database Languages, Responsibilities of Database Administrator, Database Users, Three Schema architecture of DBMS & Data Independence, Data Models.

Entity-Relationship Model: Basic concepts, Mapping Constraints, Keys, Entity-Relationship Diagram, Weak Entity Sets, Additional features of ER Model, Concept design with ER Model.

UNIT II

The Relational Model: Introduction to Relation Model, Integrity constraint over relations, Structure of relational Databases, Introduction to views, Creating, modifying and deleting tables and views.

Relational Algebra and Calculus: Relational Algebra & various operations (Set operation, select, project, joins, division, rename), Relational Calculus: Domain relational calculus, Tuple relational calculus, Expressive power of Algebra and Calculus.

UNIT III

Introduction to SQL: Concept of DDL, DML, DCL, Domain Constraints, Referential Integrity Constraints, Basic SQL queries, Aggregate Functions, Null Values.

Relational Database Design :Functional Dependency, Different anomalies in designing a Database., Normalization – 1NF, 2NF, 3NF, Boyce-Codd Normal Form, Normalization using multi-valued dependencies, 4NF, 5NF.

UNIT IV

Transaction Processing Concept : Introduction to transaction processing, ACID properties, Transaction and schedule, Concurrent Execution of transaction.

Concurrency Control: Need of concurrency control, Serializability and Recoverability, Lock Management, Lock conversion, Dealing with deadlock, Concurrency without locking.

SUGGESTED READING:

1. Database System Concepts by A. Silberschatz, H.F. Korth and S. Sudarshan, 3rd edition, 1997, McGraw-Hill, International Edition.
2. Fundamentals of Database Systems by R. Elmasri and S.B. Navathe, 3rd edition, 2000, Addision-Wesley.
3. Introduction to Database Management system by Bipin Desai, 1991, Galgotia Pub.
4. An Introduction to Database Systems by C.J. Date, 7th edition, Addison-Wesley, Low Priced Edition, 2000.

Note: Latest and additional good books may be suggested and added from time to time.

BVIT-402: VISUAL BASIC PROGRAMMING

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions   will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Introduction to Visual Basic: VB IDE, An overview of VB project types, VB as event-driven & object-based language, Default Controls in Tool Box: Label Box, Text Box, Command Button, List Box, Combo Box, Picture & Image Box, Shape box, Timer, Option button, Check Box & Frames. Exploring Project Properties.

Programming with VB: Variables, Constants, Data types, Variable Scope, Arithmetic operations, String Operations, Built-in functions, I/O in VB, Branching & Looping statements, Procedures, Arrays, Collection.

UNIT-II

Working with Forms: Working with multiple forms; Loading, Showing and Hiding forms; Creating Forms at Run Time, Drag and Drop operation, MDI form, Arranging MDI Child Windows, Coordinating Data between MDI Child Forms. Dialog Boxes and Menu: Using Common Dialog Box; Adding Menu, Modifying and Deleting Menu Items, Creating Submenus.

UNIT-III

Advanced Controls in VB: Introduction: Scroll Bar, Slider Control, Tree View, List View, Rich Text Box Control, Toolbar, Status Bar, Progress Bar, Cool bar, Image List, Tab Strip.

Working with Graphics: Using Paint, Line, Circle, RGB and other related method, manipulating graphics.

UNIT-IV

File Handling in VB: Creating a File, Saving and Opening files in Rich text box and Picture box, Handling file operations.

VB & Databases: The Data Controls and Data-Bound Controls; Using DAO, RDO, ADO.

SUGGESTED READING:

 1. Visual Basic 6 Programming: Black Book By Steven Holzner, dreamtech PRESS
2. Mastering Visual Baisc 6 By Evangelos Petroutsos BPB
3. Programming in Visual Basic 6.0 By Julia Case Bradley & Anita C. Millspaugh Tata McGraw-Hill.

4. Step by Step Microsoft Visual Basic 6.0 Professional ByMichael Halvorson PHI
5. Visual basic 6 Complete BPB
6. Teach Yourself Visual basic 6 By Scott Warner Tata McGraw-Hill Edition
7. Using Visual Basic 6 Special Edition By Brian Siler and Jeff Spotts PHI
8. Internet & World Wide Web How to Program, Pearson education, H.M.Deitel, P.J. Deitel, A.B. Goldberg.

Note: Latest and additional good books may be suggested and added from time to time.

SEMESTER-5

BVIT-501: COMPUTER GRAPHICS

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions   will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

An Introduction Graphics System: Computer Graphics and Its Types, Application of computer graphics, Graphics Systems: Video Display Devices, Raster Scan Systems, Random Scan Systems,Graphics Monitors and Work Stations, Input Devices, Hard Copy Devices, Graphics Software.

UNIT-II

Output Primitives and Attributes of Output Primitives: Output Primitives Points and Lines, Line Drawing Algorithms, Circle Generating Algorithms, Scan-Line Polygon Fill Algorithm, Inside-Outside tests, Boundary-Fill Algorithm, Flood Fill Algorithm, Cell Array, Character Generation, Introduction to Attributes of Output Primitives. Anti-aliasing.

UNIT-III

Two-dimensional Geometric Transformations: Basic Transformations, Matrix Representations and Homogeneous Coordinates, Composite Transformations, Reflection and Shearing.

Two-Dimension Viewing: The viewing Pipeline, Window to view port coordinate transformation. Co-ordinate Transformations.

UNIT-IV

Two Dimensional Clipping Operations: Point Clipping, Line Clipping, Text Clipping, Exterior Clipping. Three–Dimensional Concepts: Three Dimensional Display Methods, 3D Transformations, Parallel Projection and Perspective Projection.

SUGGESTED READING:

1. Donald Hearn and M.Pauline Baker: Computer Graphics, PHI Publications
2. Plastock : Theory & Problem of Computer Graphics, Schaum Series.

3. Foley & Van Dam: Fundamentals of Interactive Computer Graphics, Addison-Wesley.

4. Newman : Principles of Interactive Computer Graphics, McGraw Hill.

5. Tosijasu, L.K. : Computer Graphics, Springer-verleg.

Note: Latest and additional good books may be suggested and added from time to time.

BVIT-502: PROGRAMMING IN JAVA

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions   will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Introduction to JAVA: The Evolution of Java, Object-Oriented Programming Concepts and Java, Differences between C++ and Java, The Primary Characteristics of Java, The Architecture, Programming with Java, Tokens, Expressions, Using Data Types, Declarations, Control Flow, Internet and WWW, JAVA Virtual Machine, Constant and Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting, Operators,

Control statement and loop: If statement, If..else statement, Nesting of If..else statement, Switch statement, Loops: while loop, do loop, for loop, jumps in loops, labeled loops.

UNIT-II

Class: Defining a Class, Adding Variables, and Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods. Arrays: One Dimensional and two Dimensional strings, Vectors, Wrapper Classes.

Inheritance: Extending a class, Overriding Methods, Final Variables and Methods, Final Classes, finalize methods, Abstract Methods and Classes, Visibility Control. Interface: Defining Interface, Extending Interface, Implementing Interface, Accessing Interface Variables.

UNIT-III

Threads & Packages: Thread: Creating, Stopping and Blocking a thread, Life cycle of thread, Thread method, Packages: Packages, Package as Access Protection, Defining Package , CLASSPATH Setting for Packages.

Exception Handling: The Idea behind Exception ,Exceptions & Errors ,Types of Exception ,Control Flow In Exceptions, Use of try, catch, finally, throw, throws in Exception Handling ,In-built and User Defined Exceptions, Checked and Un-Checked Exceptions. Thread Priority, Synchronization.

UNIT-IV

Java Applets: Life cycle of an Applet, Adding images to an Applet, Adding sound to an Applet, Passing parameters to an applet; Event Handling, Adding Applet to HTML file, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags and Applets, Getting Input from the User.

SUGGESTED READING:

1. E. Balagurusamy, " Programming in Java", 2nd Edition, TMH Publications.
2. Peter Norton, "Peter Norton Guide to Java Programming", Techmedia Publications.

Note: Latest and additional good books may be suggested and added from time to time

1. E. Balagurusamy, " Programming in Java", 2nd Edition, TMH Publications.
2. Peter Norton, "Peter Norton Guide to Java Programming", Techmedia Publications.

BVIT-601: ADVANCED TECHNOLOGY

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions   will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Introduction to .Net: Architecture of Microsoft .Net Platform, Console environment, MSIL, JIT, Framework class library, Common language runtime, Components of CLR, Garbage Collection, common type system, common language specification, managed and unmanaged code. Introduction to Visual Studio: Types of projects, Creating and running projects in Visual studio.

UNIT-II

Introduction to C#.Net and VB.Net: Data Types, Operators, Jagged Array, Collection, OOPS Concepts: Inheritance, Constructor, Destructor, Abstraction, interface, polymorphism (Over loading and over ridding), Indexer(One Dimension) and property, Delegates and events, Exception Handling.

UNIT-III

Introduction to ASP.Net: Features, Anatomy of ASP.NET Page, Designing and Deploying Websites.

ASP.NET Controls: Standard Controls- Button, Text Box, Label, Hidden field, Checkbox, List Box, Image, radio button, File Upload etc. Navigation Controls: menu, tree view, Validation controls. Handling events and properties related to controls.

UNIT IV

Introduction to ADO.Net: Architecture of ADO.Net, Comparison with ADO, Create Connection using ADO.NET, Connection Class, .Net Data provider, Data Adapter, Data Set, Data Row, Data Column, Data Relation, command, Data Reader. Data binding, Display data on web form using Data bound controls and Data Grid.

SUGGESTED READING:

1. Jeffrey Richter, Francesco Balena: Applied .Net Framework Prog. in MS VB.Net, TMH Publication.
2. Herbert Schildt: Complete Reference C#, TMH Publication.
3. Michael Halvorsan: Microsoft Visual Basic.NET step by step, PHI Publication.
4. G.Andew Duthie: Microsoft ASP.Net With C#.Net step by step, PHI Publication.

5. Any other book(s) covering the contents of the paper in more depth.

Note: Latest and additional good books may be suggested and added from time to time.

BVIT-602: ARTIFICIAL INTELLIGENCE

Time: 3 Hrs.   **Max. Marks: 40**

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT -I

Overview of AI: Introduction to AI, Importance of AI, AI and its related field, AI techniques, Criteria for success. Problems, problem space and search: Defining the problem as a state space search, Production system and its characteristics, Issues in the design of the search problem Heuristic search techniques: Generate and test, hill climbing, best first search technique, problem reduction, constraint satisfaction.

UNIT -II

Knowledge Representation: Definition and importance of knowledge, Issues in knowledge representation, Level of representation (logic based representation, rule based representation, knowledge representation based on uncertainty), Knowledge representation schemes.

Fuzzy logic: Definition, Difference between Boolean and Fuzzy logic, fuzzy subset, fuzzy membership function, fuzzy expert system, Inference process for fuzzy expert system, fuzzy controller.

UNIT –III

Natural language processing: Introduction syntactic processing, Semantic processing, Discourse and pragmatic processing. Learning: Introduction learning, Rote learning, Learning by taking advice, Learning in problem solving, Learning from example-induction, Explanation based learning.

Neural network: Introduction, Comparison of artificial neural networks with biological neural networks, Learning in neural networks, Perceptrons, Back propagation networks, application of neural networks.

UNIT -IV

Expert system: Definition, Role of knowledge in expert system, Architecture of expert system. Expert system development life cycle: Problem selection, Prototype construction, Formalization, Implementation, Evaluation, Knowledge acquisition: Knowledge engineer, Cognitive behavior, Acquisition techniques.

Introduction to PROLOG: Prolog variables, Using rules, Input and Output predicates, Fail and cut predicates, Recursion, Arithmetic operation, Compound object, Dynamic database, Lists, String, File operations.

SUGGESTED READING:

1. Rich Elaine and : Artificial Intelligence, 2nd edition, Tata McGraw Hill .Knight Kevin
2. Tani Moto : Introduction to AI using LISP.
3. Patterson : Artificial Intelligence and Expert Systems.
4. Winston, P.H. and: LISP B.K.P.
5. Sangal Rajeev : LISP Programming, Tata McGraw Hill.
6. Balagurusamy : Artificial Intelligence & Technology.
7. Mishkoff, Henry C: Understanding Artificial Intelligence, BPB Publ.
8. Bharti & Chaitenya: Natural Language Processing, PHI

Note: Latest and additional good books may be suggested and added from time to time.