TEACHING AND EXAMINATION SCHEME

B. Sc. Information Technology - III Year

	Paper Name (Theory)	Lec	Exam Hours	MARKS	
				Min	Max
bit-301	Digital Electronics & Microprocessor	3	3	18	50
bit-302	Operating Systems	3	3	18	50
bit-303	E-Commerce	3	3	18	50
bit-304	VisualBasic.NET Programming	3	3	18	50
bit-305	Multimedia Basics	3	3	18	50
bit-306	Relational Database Management Systems	3	3	18	50
			Total of Theory Marks		**300**

	Paper Name (Practical)	Pract Hours	Exam Hours	MARKS	
				Min	Max
bit-307	Linux, HTML Programming & Photoshop	3	3	18	50
bit-308	VisualBasic.NET and SQL Programming	3	3	18	50
bit-309	Digital Electronic Lab	3	3	18	50
bit-310	Project	6	3	18	50
			Total of Practical Marks		**200**
			Total of Theory & Practical Marks		**500**

B. Sc. (Information Technology)
Scheme of Examination

Theory:

Part A:

1. 10 Question of 1.5 mark each – 15 marks
2. Answer should not exceed more than 50 words
3. All questions are compulsory

Part B:

1. 5 Questions of 3 marks each – 15 marks
2. Answer should not exceed more than 50 words
3. All questions are compulsory

Part C:

1. 3 Questions of 7+7+6 marks each – 20 marks.
2. There will be an internal choice in each question.
3. Answer should not exceed 400 words

Practical & Projects:

Practical exams shall be conducted by one internal and one external examiner of a batch of 40 students in a day.

Duration of Practical exam is 3 hours.

A Laboratory Exercise File should be prepared by each student for each practical paper and should be submitted during practical examinations.

Practical of 50 marks distribution is as under:

a. 30 marks for practical examination exercise for 3 questions
b. 10 marks for Viva-voce
c. 10 marks for Laboratory Exercise File

The number of paper and the maximum marks for each paper are shown against each subject separately. It will be necessary for a candidate to pass in the theory part as well as the practical part of a subject/paper, wherever prescribed, separately.

Classification of successful candidates shall be as follows:

First Division	60%	of the aggregate marks prescribed at (a) Part I Examination, (b) Part II Examination, (c) Part III Examination, taken together
Second Division	48%	

All the rest shall be declared to have passed the examination, if they obtain the minimum pass marks in each subject viz. 36% no division shall be awarded at the Part I and Part II examination.

Note:

Eligibility for admission in First year of B. Sc. (IT) is 10+2 with Science examination of any board with at least 50% marks. As regards admission on reserved category seats government rules will be applicable.

Duration: 3 hours	Max Marks: 50

bit-301Digital Electronics & Microprocessor

Introduction to number systems, Logic gates OR, AND, NOT, X-OR, NAND, NOR gates -Truth tables – Positive and negative logic – Logic families and their characteristics – RTL,DTL, ECL, TTL and CMOS.– Universal building blocks NAND and NOR gates. Laws of Boolean algebra De Morgan's Theorems – Boolean identities – Simplification of Boolean expressions– Karnaugh Maps – Sum of products (SOP) and Product of sums (POS).

Combinational and Sequential circuits: Multiplexer and De-Multiplexer – Decoder, Half adder, Full adder and Parallel adder circuits. Flip flops – RS, D, JK and JK Master-Slave (working and truth tables) - Semiconductor memories – Organization and working- Synchronous and asynchronous binary counters, Up/Down counters- Decade counter (7490) - working, truth tables and timing diagrams.

Introduction to Microcomputer and Microprocessor: Intel 8085 Microprocessor – central processing unit CPU – arithmetic and logic unit ALU – timing and control unit – register organization – address, data and control buses- pin configuration of 8085 and its description. Timing diagrams- Instruction cycle, machine cycle, fetch and execute cycles. Instruction set of 8085, instruction and data formats-classification of instructions – addressing modes.Assembly language programming examples of 8 and 16 bit addition, subtraction, multiplication and division.Finding the largest and smallest in a data array.
Programming examples using stacks and subroutines.

Interfacing peripherals and applications: Programmable peripheral interface (8255) - D/A and A/D converters and their interfacing to the Microprocessor. Stepper motor control- seven segment LED.

Duration: 3 hours	Max Marks: 50

bit-302Operating Systems

Introduction to Operating Systems, goals of OS, operation of OS, resource allocater and related functions, classes of OS, batch processing, multi-processing, time sharing, distributed, real time systems

System calls, system programs, structure of OS, layer design of DOS, Unix, virtual machine OS, kernel based OS, micro-kernel based OS, architecture of Window 2000.

Process concept, interacting process, threads, process in Unix, process and thread in Windows 2000, process scheduling, fundamental of scheduling, scheduling criteria, long medium short term scheduling, scheduling algorithms upto multi-processor scheduling, algorithm evaluation.

Structure of concurrent system, critical section, critical region, inter-process communication, monitor and semaphores, implementation and uses.

Unix: History, programmer interface, file manipulation, process control, kernel, signals, file system, block and inodes, stream editor, character transliteration, ed, vi editor and there commands.

Shell script, variables, file name expansion, shell commands, looping and making decisions, array, subprogram, C interface with Unix, simple shell programs.

Duration: 3 hours	Max Marks: 50

bit-303E-Commerce

Electronic Commerce Framework, Electronic and Media Convergence, Traditional vs. Electronic Business Applications, The Anatomy of E-Commerce Applications. Overview of Mobile Computing Technology, Mobile Data Internet and Mobile Computing Applications.

Networks-Security and Firewalls - Client Server Network Security Threads, Firewalls and Network Security, Data Message Security, Encrypted Documents and Electronic mail.

Architectural Framework for Electronic Commerce, World Wide Web as Architecture, Consumer Oriented E-Commerce, Electronic Data interchange (EDI), EDI Applications in Business, EDI Security Document management and Digital libraries.

Consumer-Oriented Applications, Mercantile Process Models, Mercantile Models from the Consumer's perspective, Mercantile models from the Merchant's Perspective.

Duration: 3 hours	Max Marks: 50

bit-304Visual Basic.NET Programming

Introduction to .NET, .NET Framework features & architecture, CLR, Common Type System, MSIL,Assemblies and class libraries. Introduction to visual studio, Project basics, types of project in .Net, IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser. The environment: Editor tab, format tab, general tab, docking tab. visual development.

Variables -Declaring variables, Data Types, Forcing variables declarations, Scope & lifetime of a variable, Control flow statements: conditional statement, loop statement. Constants, Arrays, types of arrays, Collections.

Subroutines, Functions, Passing variable number of arguments,Optional Arguments, Returning value from function, Msgbox&Inputbox.Class , overloading ,constructor ,inheritance,overriding,interfaces.

Working with Forms : Loading, showing and hiding forms, controlling one form within another.Textbox, Label, Button, Listbox, Combobox, Checkbox,PictureBox, RadioButton, Panel, scroll bar, Timer, ListView, TreeView, toolbar, StatusBar..OpenFileDialog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog.LinkLabel.Designingmenus :ContextMenu, access &shorcut keys.

Database programming with ADO.NET – Overview of ADO, from ADO to ADO.NET, Accessing Datausing Server Explorer. Creating Connection, Command, Data Adapter and Data Set with OLEDB andSQLDB. Display Data on data bound controls, display data on data grid.Generating reports using CrystalReportViewer

Duration: 3 hours	Max Marks: 50

bit-305Multimedia Basics

Introduction to Multimedia technology – Computer, Communication and Entertainment; Framework for multimedia systems; Advantages of MM, System components and the user inter face, MM platform, Hardware, Software, Commercial tools and standard.

Images and applications, image capture, compression, standards, Audio Compression and Decompression, Audio Synthesis, MIDI, Speech Recognition & Synthesis, Video Capturing, Compression & Decompression, digital video and image compression; JPEG image compression standards; MPEG motion video compression; DVI technology; time-based media representation and delivery.

Developing Applications, methodology, design, multimedia object sharing multimedia and multimedia and the law

Application of Multimedia: Intelligent Multimedia system, training and education, kiosks, multimedia in office and home.

Photoshop: Fundamentals, Opening and Importing Images, Resolution, Models and Colour Spaces, Layers. Painting Pixels: The Painting Tools, Erasing, Fills, Type. Selection And Allied Operations: Marquee selection and cropping, Lasso Selection, Paths, Combining and Transforming Selections.

Adjustments and Retouching: Tonal Adjustment, Colour Adjustments, Retouching By Hand. Effects and Filters: Blurring and Sharpening, Special Effects and Distortion, Layer Effects and Layer Styles.

Flash: Animation with Interacting, Basic Concepts, Drawing, Lines and Shapes, Strokes and Fill, Shapes and Brushes, Selection, Transformation and Reshaping, Importing Artwork and Manipulating Images. Animation: Animating One Frame at a Time, Motion Tweening , Symbols and Instances , Shape Tweening, Sound.

Actions: Buttons, Button action , Frame Action , Action and Movie Clip Symbols , Actions , Browsers and Networks , Beyond the Basic Actions. Flash CS 6: Interface Elements, Panels, Tools, Layer Folders, Accessibility, Video.

Duration: 3 hours	Max Marks: 50

bit-306Relational Database Management Systems

Distributed database design, architecture of distributed processing system, data communication concept, data placement, placement of DDBMS, and other components, concurrency, control and recovery, transaction management, need of recovery, recovery techniques, serializability, blocking, dead-locks, introduction to query optimization.

Query optimization and processing, algorithm for external sorting, select and join, object and set operations, heuristics in query optimization, temporal database concept, multi-media database, data-mining, association rule, classification, application, data-warehousing, need, architecture, characteristics, data layer.

Introduction to SQL, security and integrity of databases, security specifications in SQL

Oracle RDBMS : Overview of three tier client server - technology, Modules of Oracle & SQL*PLUS Data types, Constraints, Operators, DDL, DML,DCL – (Create, Modify, Insert, Delete and Update; Searching, Matching and Oracle Functions), Data types, PL/SQL functions, Error handling in PL/SQL, package functions, package procedures, Oracle transactions. SQL Stored Procedures.

Database Triggers : Introduction, Use & type of database Triggers, Triggers Vs. Declarative Integrity Constraints, BEFORE Vs. AFTER Trigger Combinations, Creating a Trigger, Dropping a Trigger.