TEACHING AND EXAMINATION SCHEME FOR

B. SC. (INFORMATION TECHNOLOGY) I YEAR

Paper Name (Theory)	Lec	Exam Hours	Min Marks	Max Marks
BSCIT – 01 Computing Logics & Reasoning	3	3	18	50
BSCIT – 02 Foundation Course in IT	3	3	18	50
BSCIT – 03 Office Automation PC Software	3	3	18	50
BSCIT – 04 C Programming & Data Structures	3	3	18	50
BSCIT – 05 Circuit Analysis & Electronic Device	3	3	18	50
BSCIT – 06 Database Management System	3	3	18	50
			Total of Theory	**300**

Paper Name (Practical)	Pract Hours	Pract Exam	Min Marks	Max Marks
BSCIT – 07 PC Software Laboratory	3	3	18	50
BSCIT – 08 C & Data Structure Programming	3	3	18	50
BSCIT – 09 FoxPro Programming	3	3	18	50
			Total of Theory	**150**
			Grand Total of Theory + Practical	**450**

Note:

1. The question paper will be divided into 3 parts:
   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 – 20 marks.
   2. There will be an internal choice in each question.
   3. Answer should not exceed 400 words

2. A Laboratory Exercise File should be prepared by each student for each practical paper and should be submitted during practical examinations.
3. One internal and one external examiner shall conduct two practical exams, in a day, of a batch of 40 students.
4. Duration of practical exam is 3 hours.
5. 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.

B. SC. (INFORMATION TECHNOLOGY)
SCHEME OF EXAMINATION

The number of paper and the maximum marks for each paper together with the minimum marks required for a pass 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 Part I Examination, Part II Examination, 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.

BSC-IT – 01 COMPUTING LOGICS & REASONING

Number systems: Natural numbers, integers, rational numbers, real numbers, complex numbers, arithmetic modulo a positive integer (binary, octal, decimal and hexadecimal number systems), radix r representation of integers, representing negative and rational numbers, floating point notation.

Binary arithmetic, 2's complement arithmetic, conversion of numbers from one of binary/ octal/decimal/hexadecimal number system to other number systems, codes (natural BCD, Excess-3, gray, octal, hexadecimal, alphanumeric – EBCDIC and ASCII) error codes.

Law of formal logic, connectivity, propositions, conditional statements, WFF, tautology, contradiction, logical equivalence, law of logic, duality, logical implications, normal forms, sets, sub-sets, finite and infinite sets, universal, power, disjoint sets, property of sets, union, intersection sets, distributive, compliment and property of compliment, Venn diagram, difference, cartisan product set.

Relation property, irreflexive, asymmetric, compatible universal complimentary relation, equivalence class, coordinate diagram, transitivity extension, closure, matrix representation and digraph, functions, mapping, composition of functions, associative mapping, inverse mapping, characteristic functions, recursions, linear recursion relation, non-homogenous relations.

Partial ordering, total order set, dual order, Hasse Diagram, Lexicographic ordering, least and greatest element, minimal and maximal element, upper and lower bound, well-order set, operations, well-ordering theorem, lattices property, bounded lattices, direct product, Boolean algebra, homomorphism, minimization function, gates, Boolean algebra and applications.

BSC-IT – 02 FOUNDATION COURSE IN IT

Introduction to Computer: Definition, Characteristics, Classification of Computers, Analog Computers, Digital Computers, Hybrid Computers, Classifications of computer on the basis of size and speed, different type of computers, generation of computers.

Computer keyboard, pointing devices, mouse, track ball, touch pad, joystick, touch – sensitive screens, pen – based systems, digitizer, data scanning devices, optical recognition systems, bar code readers, optical mark readers, optical scanners, drum scanners, hand scanner, flatbed scanner, web camera, game pad, digital camera.

Hard copy devices: Printer, impact printers, daisy wheel, dot matrix printer, line printer, chain printers, comb printers, non-impact printers, DeskJet, inkjet printers, laser printer, thermal transfer printer, barcode printers.

Computer Display: CRT, LCD, projection displays, plasma display panel, display standard, monochrome display adapter, HGA, CGA, EGA, VGA, MGA, SVGA, XGA, QVGA, SXGA, UXGA

Introduction to memory, classifications, random-access memory, volatile memory, non-volatile memory, flash memory, read-only memory, secondary memory, the cache memory, auxiliary storage memory, memory hierarchy, storage devise, magnetic tape, magnetic disk, floppy disk, hard disks, CD, DVD, magneto-optical.

Number system, binary, octal, hexadecimal, addition, subtraction, multiplications, computer code: BCD, ASCII, EBCDIC code, Excess-3 code, gray code, software, User interface, system software, programming software, application software logic gates and Boolean algebra representation and simplifications by kMap.

Computer Viruses: Introduction, history, types of computer viruses, classification of viruses ways to catch a computer virus, symptoms of a computer virus.

Application of computer: Desktop publishing, sports, design and manufacturing research and design, military, robotics, planning and management, marketing, medicine and health care, arts, communications, scientific, education.

Introduction of internet, history, IP, TCP and UDP, application protocol, world wide web, how the web works, web standards, website, overview, types of websites, electronic mail, internet, e-mail header, saved message file extension, messages and mailboxes, introduction to intranet, uses, advantages, disadvantages.

Introduction to data warehouse, components of a data warehouse, different methods of storing data in a data warehouse, advantages of using data warehouse.

BSC-IT – 03 OFFICE AUTOMATION PC SOFTWARE

MS-Windows:
Introduction to MS Windows, concept of GUI, windows explorer, control panel, accessories, running applications under MS Windows

MS-Word:
Introduction to MS Word, Standard Toolbar, Word wrap, text formatting, formatting paragraphs, applying effects to text, applying animation to text.

MS Excel:
Introduction to MS Excel, working with toolbars, formatting, formulae, data management, graphs and charts, macros and other additional functions.

MS PowerPoint:
Introduction to PowerPoint, slide creation, slide show, adding graphics, formatting, customizing and printing

MS Access:
Introduction, understanding databases, creating a database and tables automatically, creating and customizing a form adding, editing, sorting and searching of records, creating and printing reports, queries, creating a database and application, linking, importing and exporting data, form, creating reports, creating charts and pivot tables.

BSCIT – 04 C PROGRAMMING AND DATA STRUCTURE

C Language: Types, operators and expressions, variable names, data types and sizes, constants, declarations, operator, expressions and type conversions.

Control statements, loop, jump, functions and program structure, Pointer and Arrays, structure, union and typedef, file handling, file function.

Data Structures: Arrays, stacks, queues, d-queue, linked lists, single link list, double link list, trees, threaded tree, b-tree, graphs, depth first search, breath first search, kruskal algorithm, prism algorithm, prefix, postfix, infix, in-order, pre-order, post-order, recursive functions.

Sorting: Internal and external sorting. Quick Sort, merge sort, bubble, insertion, selection sorting.

Shortest path, travel salesman problem

Searching techniques and merging algorithms

Duration: 3 hours *Max Marks: 50*

BSCIT – 05 CIRCUIT ANALYSIS & ELECTRONIC DEVICE

Number Systems and Codes:- Binary, Decimal , Octal, Hexadecimal and their interconversions,

Codes:- BCD, Excess-3, Gray code etc.

Digital electronic signals and switches: - Concept on digital signal, logic levels, Active
high, Active low signals, Switching Characteristic of Semiconductor diode, Transistor.

Logic Gates: - AND, OR, NOT, NOR, NAND, EX-OR, EX-NOR operations and their truth table. Boolean algebra and reduction techniques: - K-Maps and Quine . McClusky.

Arithmetic Operations: - Binary Addition, Subtraction, Multiplication, Division. 2.s Complement Subtraction. Circuits: - Half- Adder, Full Adder, Half Subtracter, Full Subtracter, 2-bit by 2-bit Multiplier , Various Code convertors.

Multiplexers (MUX):- Working of MUX, Implementation of expression using MUX.

Demultiplexers (DEMUX):- Implementation of expression using DEMUX, Decoder. FLIP FLOP s :- Concept of Sequential circuit, S-R, J-K , Preset & Clear, Master .

Slave J.K D , T Flip Flops their truth tables and excitation tables, Conversion from one type to another type of Flip Flop. Registers. Logic families and their characteristics :- Characteristic of Digital ICs .

Duration: 3 hours *Max Marks: 50*

BSCIT – 06 DATABASE MANAGEMENT SYSTEMS

Object of database systems, data abstraction, data definition language, data manipulation language, database manager, database administrator, trade offs between utilities of data and control of data.

Entity relationship model, entities and entity sets their relationship, mapping constraints, generalization , aggregation, use of ER model for the design of databases, implementation trade offs of sequential, random, index sequential file organization, relational algebra, relational calculus and normalization upto DKNF

Relational Query Language: DDL, DML, database integrity, domain integrity, entity integrity, referential integrity, security, authorization, access matrix, concurrency, locks, serializability, recovery.

Introduction to FoxPro: Creation of database, field types, adding records, editing and deleting of data, viewing data, navigating in data file, searching of data, memory variables and arrays.

Sorting the database, indexing, compound index files, managing multiple data files, setting environment using SET commands, setting filters, setting relations, date and time functions, character and file functions.

Programming with FoxPro, input and output, making decisions, loop constructs, debugging programs, setting up of screen displays, procedures and user defined functions, creating and printing formatted reports.