UNIVERSITY OF KOTA
M.Sc. Computer Science Exam.-2013

Duration: 2 years

Eligibility: Graduation in any stream (Under 10+2+3 Scheme) with Minimum of 50% marks

(45% for candidates belonging to the reserved category SC/ST/OBC)

Selection: Common Entrance Test to be conducted by University of Kota. Scheme of Examination and Courses of Study

1. The number of papers and maximum marks for each paper/ practical are shown in the syllabus. It will be necessary for a candidate to pass in the theory part as well as in the practical separatelu.
2. A Candidate for a pass at each of the Previous and the Final Examinations shall be required to obtain (i) at least 36% marks in the aggregate of all the papers prescribed for the examination and (ii) at least 36% marks in practicals, provided that if a candidate fails to secure at least 25% marks in each individual theory paper at the examination and also in the project report he shall be deemed to have failed at the examination, not withstanding his having obtained the minimum percentage of marks required in the aggregate for the examination. No division will be awarded at the previous examination. Division shall be awarded at the end of the final examination on the combined marks obtained in the previous and the final examination taken together, as noted below :

First Division	60%	of the aggregate mark taken.
Second Division	48%	together the Prev. & Final Examination

3. If a candidate clears any paper(s)/ practical(s)/ project prescribed at the pervious and/ or final Examination after a continuous period of three years, then for the purpose of working out his division, the minimum pass marks only viz. 25% (36% in the case of practical) shall be taken into account in respect of such paper(s)/Practical(s)/Project which are cleared after the expiry of the aforesaid period of three years, provided that in case where a candidate requires more than 25% marks in order to reach the minimum aggregate, as many marks out of those actually secured by him will be taken in to account as would enable him to make up the requisite minimum aggregate.
4. The Training seminar and project report work shall be assessed by one internal and one external examiners only.
5. A candidate failing at M.Sc. Final Previous examination may be provisionally admitted to the M.Sc. Final class. Provided that he passes in atleast 50% papers as per Provisions of 0.235 (i)
6. A candidate may be allowed grace marks in only one theory papers upto the extent of 1% of the total marks prescribed for that examination

TEACHING AND EXAMINATION SCHEME FOR

M.Sc. Previous Computer science -2013

Paper Name (Theory)	Lec.	Tut.	Exam. Hours	Max. Marks
MCS 101 Introduction to Computer and PC Software	3	1	3	100
MCS 102 Programming with C and and Visual Basic	3	1	3	100
MCS 103 Electronic Data Processing	3	1	3	100
MCS 104 Advance Database Management Systems	3	1	3	100
MCS 105 Operating Systems	3	1	3	100
MCS 106 Java	3	1	3	100
		Total of Theory		**600**
Paper Name (Practicals)				
MCS 107 Introduction to Computer and PC Software			3	50
MCS 102 Programming with C and and Visual Basic			3	50
MCS 103 Electronic Data Processing			3	50
MCS 104 Advance Database Management Systems			3	50
MCS 105 Operating Systems			3	50
MCS 106 Java			3	50
			Total of Practical	**300**
		Grand Total (Theory + Practicals)		**900**

M.Sc. COMPUTER SCIENCE (P)
MSC 101 INTRODUCTIONS TO COMPUTER AND PC SOFTWARES

Max. Marks: 100 Min marks: 36

Unit – 1

Basic computer Organization : Arithmetic, logic, control and memory units, Internal representation of information, characters and codes, memory access, contents, input and output units conversational devices, basic architecture of a CPU Instruction format. Fetch and execute cycle.

Addressing modes. Control unit architecture.

Unit – 2

I/O Architectures: Characteristics of simple I/O devices and their controllers. Transfer of information among I/O devices CPU are memory. Program controlled and interrupt controlled information transfers. Introduction to DMA and I/O channels.

Memory Organization: Random access, serial access and direct access memories. Basic memory organization. Introductory concepts of virtual memory system.

Unit – 3

Introduction to MS Windows, concept of GUI, desktop, program, accessories, control panel, printers management, windows explorer, my documents, recycle, icons, shortcuts, files & folders, running applications under MS Windows.

Introduction to MS Word, creating, editing, viewing, formatting and Printing documents, tools, tables, mail merge, spell checker and features of MS Word.

Unit – 4

Introduction to MS Excel, creating worksheets, editing, formatting work sheets, working with cell range, formulas and functions, graphs, data handing, format and tools.

Unit – 5

Introduction to MS PowerPoint, creating, editing slides, viewing slides, inserting slides and frames, tools and slide shows, OLE.

Reference Books:

1. Office 2000 for Everyone, Sanjay Saxena, Vikas Publications.
2. P.K. Sinha, Computer Fundamentals, BPB Publication.
3. First computer courses, Sanjay Saxena, Vikas Publications.
4. Fundamentals of IT, Leon and Leon, Vikas Publications.
5. Computer Architecture and Organization, Hayes, Tata McGraw Hill.
6. Computer Architecture and Logic Design, Thomas C, Tata McGraw Hill.

MCS 102 PROGRAMMING WITH CARD VISUAL BASIC

Max Marks: 100 Min. Marks: 36

Unit – 1

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

Control flow: Statements and blocks, selection and loops structures, break, continue, branching and labels.

Functions and program structure: Basics, functions and their arguments, external variables and static variables, scope rules, register variables, block structures, initialization, recursion.

Unit – 2

Pointers and Arrays: Pointers and addresses, pointes and function arguments, pointers and arrays, address arithmetic, character pointers and function, multi-dimensional arrays, pointers arrays, pointer to functions.

Unit – 3

Structures: Basics, structures and functions, arrays of structures, pointers to structures, table look up fields, typedef, file stack, linked list, prefix, postfix, infix, queue.

Unit – 4

Introducing Visual basic, event driven programming, controls and events, menu system, program language, program design, forms and the controls writing and testing code, making an EXE file, logical testing, branching.

User interface programming. Msg boxes, input box functions, scroll bars, frames, options, check boxes, menus, testing and debugging programs.

Unit – 5

Graphic object and properties for drawing, importing graphics, animation, procedures, functions forms, modules, recursive functions, multiple and startup forms, transferring, sub main, arrays, dimensions, elements and subscripts, control arrays, data file saving, data analysis, random access files, MD I forms, data manger, data controls, data aware controls.

Reference Books:

1. Introduction to programming using Visual Basis 5.0, David Schneider, PHI
2. Programming with visual Basic 6.0, Mohammed Azam, Vikas publications.
3. ANSI C,E. Balagurusamy, Tata McGraw Hill
4. Programming in C, Gottfried, Tata McGraw.
5. Unix & C, A. Tutorial Introduction, Philip corneas, Tata McGraw.
6. C Programming Language, Kernighan, Prentice hall of India.
7. C Programming R.B. Patil, Khanna Publication.

MCS 103 ELECTRONIC DATA PROCESSING

Max Marks: 100 Min. Marks: 36

Unit – 1

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

Unit – 2

Entity relationship model; entities and entity sets their relationship, mapping constraints, generalization, aggregation, use of ER model for the design of databases, implantations trade offs of sequential, random, index sequential file organization, introduction and history of relational database, system relational algebra, normalization up to BCNF.

Unit – 3

Introduction to Visual FoxPro:managing data, searching the database, sorting the database, editing and modifying databases, creating and printing formatted reports, managing numbers in a database.

Unit – 4

Managing multiple data files, combining and summarizing databases, memory variables, creating command files, making decisions, program design and development, a mailing list system, debugging techniques setting up screen displays.

Unit – 5

Application development using Visual FoxPro for for Payroll and Inventory.

Reference Books:

1. Visual FoxPro, Programming Basics, Tom steams, Tata McGraw
2. Mastering Visual FoxPro – 3, Siegel BPB Publications.
3. Database Management System, Korth, Tata McGraw Hill.
4. Data base system Concept, C.J. Date.
5. Data Base Management system, Navathe, Pearson Education Asia.

MCS 104 ADVANCE DATABASE MANAGEMENT SYSTEM

Max Marks: 100 Min. Marks: 36

Unit – 1

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.

Unit – 2

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) SQL Forms concepts & Construction, Creating default form, user – defined form, multiple–record form, Master-detail form, PL/SQL syntax, Data types, PL/SQL functions, error handing in PL/SQL, package functions, package procedures, Oracle transactions, SOL Report Writer Selective dump repot, Master – detail Report, Control- break, Test report. Stored Procedures and

Functions: Stored Procedures, Creation and execution of procedures & functions, Stored functions and procedures.

Unit – 3

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

Developer 2000, working with forms, Master Forms, Property class, mater detail form, parameter passing in forms and reports.

Unit – 4

Introduction to DB2, architecture, defining database, manipulating database, external views, DB2 internals, IMS architecture, IMS physical database, IMS logical database.

Unit – 5

Introduction to RPG/400 programming, report heading, eating, eval expression, arithmetic functions, RPG/ 400 structure operations for decision making, branching, looping control, sub-routines, array, table processing, RPG/400 functions, data validation, physical file maintenance.

Reference Books:

1. Database Management System. Korth, Tata McGraw Hill.
2. Database Systems. Catherine Ricardo, Maxwell & Macmillan.
3. SQL Complete Reference, Leon and Leon, Tata McGraw Hill.
4. Oracle Developers guide, Muller, Tata McGraw Hill.
5. SQL, PL/SQL programming Language, lvan Bayross, BPB Publications.
6. Commercial Application Development Using Oracle Developer 2000, Ivan Bayross, BPB Publications.
7. DB2 Development's Guide, Mullins,, BPB Publications.
8. Data Base System : Concept C.J. Date.
9. Data Base Management system, Navathe, Pearson Education Asia.

MCS 105 OPERATING SYSTEMS

Max Marks: 100 Min. Marks: 36

Unit – 1

Introduction to Operating Systems, time sharing, PC, parallel, distributed, real time systems, system calls, system programs, process concept, process scheduling, CPU scheduling.

Unit – 2

Dead lock, characterization, methods for handing dead locks, prevention, avoidance, memory management, paging, virtual memory, page replacement, algorithms.

Unit – 3

Disk structure, disk scheduling, disk management, security, distributed system structure, Netware operating systems, distributed operating systems, semaphores, monitors.

Unit – 4

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

Unit – 5

Shell script variables, file name expansion, shell commands, looping and making decision.

Reference:

1. Advance Unix-A Programmer's Guide, Prata, SAMS
2. Operating System Concepts, Galvin, Addison Wesley
3. Operating System, Ritchie, BPB Publications.
4. Unix System V Primer, Prata, BPB Publications.

MCS 106 JAVA

Max Marks: 100 Min. Marks: 36

Unit – 1

Introduction to Java, history, characteristics, Object oriented programming, data types, variables, arrays.

Unit – 2

Control Statement: selection, iteration, jump statement, operators

Unit – 3

Introduction to classes, class fundamentals, constructor, methods, stack class, inheritance, creating multilevel hierarchy, method over riding.

Unit – 4

Packages and interfaces, exception handling, multi- threaded programming. I./O applets.

Unit – 5

Java Library, string handing, string comparison, string buffer, utility classes, vector stack dictionary, applet class, introduction to AWT, working with frame windows.

Reference books:

1. V. Daniel Liang, Introduction to Java Programming, PHI.
2. Patrick Naught on, Java Complete Reference, Tata McGraw Hill.
3. The Java Handbook, Patrick Naught on, Tata McGraw Hill.
4. Introduction to Java programming, E Balagurusamy, PHI.
5. Programming Java, Decker & Hartsfield, Vikas Publications.