M.D.S.University,Ajmer

BCA -2 Syllabus

TEACHING AND EXAMINATION SCHEME FOR

BACHELOR IN COMPUTER APPLICATIONS II YEAR (2011)

Paper Name (Theory)	Lec	Exam Hours	Min Marks	Max Marks
BCA – 10 Communication Skills	3	3	18	50
BCA – 11 Database Management Systems	3	3	18	50
BCA – 12 Client Server Technology	3	3	18	50
BCA – 13 Java Programming	3	3	18	50
BCA – 14 C++ Programming	3	3	18	50
BCA – 15 Computer Graphics	3	3	18	50
Total of Theory				**300**

Paper Name (Practical)	Prac	Prac Hours	Min Marks	Max Marks
BCA – 16 FoxPro Programming	3	3	18	50
BCA – 17 Java Programming	3	3	18	50
BCA – 18 C++ Prog. & Computer Graphics	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 mark each – 10 marks
2. Answer should not exceed more than 20 words
3. All questions are compulsory

   Part B:
1. 5 Questions of 2 marks each – 10 marks
2. Answer should not exceed more than 50 words
3. All questions are compulsory

   Part C:
1. 3 Questions of 10 marks each – 30 marks.
   There will be an internal choice in each question.
2. Answer should not exceed 400 words
3. All questions are compulsory.

   2. A Laboratory Exercise File should be prepared by each student for each practical paper and should be submitted during practical examinations.
   3. Duration of practical exam is 3 hours.

4. One internal and one external examiner shall conduct two practical exams, in a day, of a batch of 40 students.

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.

BACHELOR IN COMPUTER APPLICATIONS
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
Second Division	48%	Examination, taken together

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 BCA is 10+2 examination of any board with at least 50% marks. As regards admission on reserved category seats government rules will be applicable.

BCA – 10 COMMUNICATION SKILLS

Types of communications – oral communication, written communication – formal, informal, business letters – types of letter, writing letters, business correspondence, applying for a job, resume writing, filling an employment application.

Report writing – definition and determining reports purpose, report planning, collecting information, developing an outline, sections of report, types of report, making reports writing effective, drafting circulars, notices, agenda and minutes of meetings.

Duration: 3 hours   *Max Marks: 50*

BCA – 11 DATABASE MANAGEMENT SYSTEMS

Overview of DBMS: Basic DBMS terminology, DBA and his responsibilities, physical and logical data independence, architecture of DBMS, distributed databases, structure design and Client/server architecture.

Entity-Relationship Model, entity, entity set, attributes, tuples, domains, keys, super and candidate key, overview of hierarchical, network and relational models, comparison of network, hierarchical and relational models

Relational Model: Storage organization for relations, relational algebra, set operators, relational operators, decomposition of relation schemes, functional dependencies, multi-valued dependencies, normalization up to DKNF.

Relational Query Language: DDL, DML, DCL, 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.

Duration: 3 hours   *Max Marks: 50*

BCA – 12 CLIENT SERVER TECHNOLOGY

Client/server computing: Evolution of client/server concepts, definition, history, need and motivation for client/server approach, client/server environments, characterization of client/server computing, client/server types and examples.

Client/server development tools, advantages of client/server technology connectivity, user productivity reduction in network traffic, faster delivery of systems.

The Role of Client – Client request for service, dynamic data exchange, OLE, Common Object Request Broker Architecture (CORBA), Components of client/server applications

The Role of Server – Server functions, network operating systems, Novel Netware, LAN Manager, Server Operating System, System Application Architecture.

Architecture: Components of client-server architecture, application partitioning, the two-layer and three-layer architectures, communication between clients and servers, use of APIs in client/server computing, middleware technology in client/server computing. Open System Interconnectivity (OSI), Inter Process Communication (IPC)

Client/Server System Development – Network Management, Remote System Administrations, LAN Network Management, Privacy and Security Issue, Developing applications on RDBM, GUI design concepts

BCA – 13 JAVA PROGRAMMING

Introduction to Java, history, characteristics, Object Oriented Programming, data types, variables, arrays, difference between Java and C++

Control statements: Selection, iteration, jump statements, operators

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

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

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

Java Beans, beans architecture, AWT components, advantage of Java Beans, beans serialization, JDBC, class and methods, API components, JDBC components, driver, connectivity to database processing result and interfaces, RMI, comparison of distributed and non-distributed Java programs, interfaces, RMI architecture layer, *ODBC, CORBA, CORBA services* and products, CGI, structure of CGI.

BCA – 14 C++ PROGRAMMING

Evolution of OOP, OOP Paradigm, advantages of OOP, comparison between functional programming and OOP approach, characteristics of object oriented language – objects, classes, inheritance, reusability, user defined data types, polymorphism, overloading.

Introduction to C++ identifier and keywords, constants, C++ operators, data type conversion, variable declaration, statements, expressions, input and output, conditional expression loop statements, breaking control statements. Defining a function types of functions, storage class specifiers, recursion, arrays, structures, pointers and structures, unions

Classes, member functions, objects arrays of class objects, pointers and classes, nested classes, constructors, destructors, overloading and overriding inline member functions, static class member, friend functions, dynamic memory allocation.

Inheritance, single inheritance, types of base classes, types of derivation, multiple inheritance, container classes, member access control. Function overloading, operator overloading, polymorphism, virtual functions, pure virtual functions, opening and closing of files, stream state member functions.

Duration: 3 hours   *Max Marks: 50*

BCA – 15 COMPUTER GRAPHICS

Graphics hardware: The functional characteristics of the systems are emphasized

Input devices: Keyboard, touch panel, light pens, graphic tablets, joysticks, track ball, data glove, digitizer, image scanner, mouse, voice systems.

Hard copy devices: Input and non-impact printers such as line printer, dot matrix, laser, inkjet, electrostatic, flat bed and drum plotters.

Video Display Devices: Refresh cathode ray tube, raster scan displays, random scan displays, colour CRT monitors, direct view storage tube, flat panel displays, 3-D view devices, virtual reality, raster scan systems, random scan systems, graphics monitors and work stations.

Scan conversion algorithms for line, circle and ellipse, Bresenham's algorithms, area filling techniques, character generation.

2-dimensional graphics: Cartesian and Homogeneous co-ordinate system, Geometric transformations (translation, scaling rotation, reflection, shearing, 2-dimensional viewing transformation and clipping (line, polygon and text).