MAHARSHI DAYANAND SARASWATI UNIVERSITY, AJMER

पाठ्यक्रम

SYLLABUS

SCHEME OF EXAMINATION AND COURSES OF STUDY

FACULTY OF SCIENCE
BACHELOR IN COMPUTER APPLICATIONS
BCA -I, BCA-II, BCA-III

२०१२−१३ से प्रभावी(w.e.f.)

सत्र २०१३−१४

महर्षि दयानन्द सरस्वती विश्वविद्यालय, अजमेर

COMPULSORY PAPER OF ENVIRONMENTAL STUDIES

Compulsory in I year for all streams at undergraduate level
Scheme of examination

Time 3 hrs	Pass Marks 36	Max. Marks 100

Theory paper will contain nine questions. The students are required to attempt five question in all including question no.1 which will be compulsory.

Q1 short answer type. Ten question of two marks each (compulsory) $10 \times 2 = 20$

Q2 to Q9 essay type question of 20 marks each (attempt any four)

The students are required to visit some field or sites mentioned in the syllabus under the guidance of a teacher. The teacher shall certify that the student have visited the site and should further inform their respective principal in writing regarding the same.

Note:
1. The marks secured in this paper shall not be counted in awarding the division to a candidate.
2. The candidate have to clear compulsory paper in three chances
3. Non appearing or absent in the examination of compulsory paper will be counted a chance.

Unit 1: The Multidisciplinary nature of environmental studies
Definition , scope and importance
Need for public awareness.

Unit 2: Natural Resources:
Renewable and non-renewable resources:
- Natural resources and associated problems.
a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
b) Water resources: Use and over-utilization of surface and groundwater, floods, drought, conflicts over water, dams-benefits and problems.
c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) Energy resources: Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources. Case studies.
f) Land resources: Land as a resource, Land degradation, man induced Landslides, soil erosion and desertification.
- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit 3: Ecosystems
- Concept of an ecosystem. • Structure and function of an ecosystem.
- Producers, consumers and decomposers. • Energy flow in the ecosystem
- Ecological succession • Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem:
a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4: Biodiversity and its conservation

- Introduction – Definition: genetic, species and ecosystem diversity.
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation
- Hot-spots of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit 5: Environmental Pollution

Definition
- Causes, effects and control measures of:-
    a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards
- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies.
- Disaster management: floods, earthquake, cyclone and landslides.

Unit 6: Social Issues and the Environment
- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case Studies.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environmental Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and Control of Pollution) Act.
- Wilde life Protection Act.   • Forest Conservation Act.
- Issues involved in enforcement of environmental legislation.
- Public Awareness.

Unit 7: Human Population and the Environment
• Population growth, variation among nations. • Population explosion-Family Welfare Programme. • Environment and Human health. • Human Rights. • Value Education. • HIV/AIDS. • Women and Child Welfare. • Role of Information Technology in Environment and human health. • Case Studies.

Unit 8: Field Work
- Visit to a local area to document environmental assets- river / forest / grasslands / hill/ mountain.
- Visit to local polluted site- Urban /Rural / Industrial /Agricultural.
- Study of common plants, insects, birds.
- Study of simple ecosystems- pond, river, hill slope, etc.

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TEACHING AND EXAMINATION SCHEME FOR BACHELOR IN COMPUTER APPLICATIONS I YEAR

Paper Name (Theory)	Lec	Exam Hours	Min Marks	Max Marks
BCA – 01 Management and Accounting	3	3	18	50
BCA – 02 Computer Fundamentals	3	3	18	50
BCA – 03 PC Software	3	3	18	50
BCA – 04 Fundamentals of C Programming	3	3	18	50
BCA – 05 Data Structure and Algorithm	3	3	18	50
BCA – 06 Multimedia Basic	3	3	18	50
Total of Theory				300

Paper Name (Practical)	Prac	Prac Hours	Min Marks	Max Marks
BCA – 07 PC Software Laboratory	3	3	18	50
BCA – 08 C Programming Laboratory	3	3	18	50
BCA – 09 Multimedia, Tally	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.

B.C.A. - 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.

Duration: 3 hours *Max Marks: 50*

BCA – 01 MANAGEMENT AND ACCOUNTING

Introduction to Management thought, functions, skills of a manager. Overview of Management functions with reference to planning process, leadership, motivation-implication for managers, theories of motivation.

Communication: Process, barriers to communication, role of electronic media and information technology in communication.

Cross-cultural issues in management, social and environmental responsibility

Organizational culture, individual perception, values, attributes, interpersonal effectiveness, power and politics, conflict management, team and group processes

Stress management: Various types of stress, coping mechanism

Accounting: Definition, concepts, standards, basic accounting, entries, ledger, triple column cash book, brief understanding of final accounts, Automatic Accounting processes.

Financial statements, ratio analysis

Cost accounting – CVP analysis, BEP and P/V graph

Budgeting: Meaning of budgeting, flexible and fixed budgets.

Duration: 3 hours *Max Marks: 50*

BCA – 02 COMPUTER FUNDAMENTALS

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

Duration: 3 hours   *Max Marks: 50*

BCA – 03 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 of paragraphs, applying effects to text, applying animation to text, mail merge.

MS-Excel: Introduction to MS-Excel, working with toolbars, formatting, formulae, data management, graphs, 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.

Duration: 3 hours   *Max Marks: 50*

BCA – 04 FUNDAMENTALS OF 'C' PROGRAMMING

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.

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

Structures: Basics, structures and functions, arrays of structures, pointers to structures, unions and typedef.
File handling, file function.

Duration: 3 hours   *Max Marks: 50*

BCA – 05 DATA STRUCTURE AND ALGORITHMS

Fundamental Notations: Primitive and composite data types, time and space complexity of algorithms.

Data structures: Arrays, stacks, queues, D-Queue, linked lists, single link list, double link list, trees and graphs, depth first search, breath first search,

kruskal algorithms, prism algorithm, prefix, postfix, infix, in-order, pre-order, post-order, recursive functions.

File structures: Concepts of fields, records and files, sequential file organization

ISAM, hashing techniques, inverted lists and multi-lists

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

Searching techniques: Linear and binary search, merging algorithms

Duration: 3 hours   *Max Marks: 50*

BCA – 06 MULTIMEDIA BASICS

Introduction to Multimedia technology – computer, communications and entertainment; framework for multimedia systems: Advantages of MM, system components and the user interface, MM platform, hardware software, commercial tools and standard.

Images and applications, image capture, compression, standards, audio compression and decompression, audio synthesis, MIDI, speech recognition and synthesis, video capturing, compression and 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.

Build HTML, documents from scratch, view HTML, document using a variety of Web browsers organize information using lists, use HTML, frames and tables for page layout, connect to a variety of resources by using hypertext links, create style sheets to format the look and feel of the pages, understand key image theory concepts, create new images from scans or from scratch, optimize image sizes, create animated gifs and transparent images, be able to create graphical elements for use on web pages: buttons banners navigation bars, background titles, embed images and other multimedia.

BACHELOR IN COMPUTER APPLICATIONS II YEAR

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++ Programming &				
	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..

B.C.A. - 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: Attempt any 5 questions
Duration: 3 hours   *Max Marks: 50*

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, inp t 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

Duration: 3 hours   *Max Marks: 50*

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.

Duration: 3 hours   *Max Marks: 50*

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).

BACHELOR IN COMPUTER APPLICATIONS III YEAR

Paper Name (Theory)	Lec	Exam Hours	Min Marks	Max Marks
BCA – 19 E-Commerce	3	3	18	50
BCA – 20 Computer Net. & Mobile Computing	3	3	18	50
BCA – 21 Visual Basic Programming	3	3	18	50
BCA – 22 Internet Tools & Website Development	3	3	18	50
BCA – 23 Management Information Systems	3	3	18	50
BCA – 24 Relational Database Manag. Systems	3	3	18	50
Total of Theory				300

Paper Name (Practical)	Prac	Prac Hours	Min Marks	Max Marks
BCA – 25 Visual Basic Programming	3	3	18	50
BCA – 26 Web Dev. (DHTML, Java Script, Exploring Internet, E-Commerce	3	3	18	50
BCA – 27 Oracle & SQL Programming	3	3	18	50
BCA – 28 Project	3	3	18	100
Total of Theory				250
Grand Total of Theory + Practical				550

Note:

1. Attempt 5 questions out of 10 questions set by the examiner.
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. Project Work: 6 hours per student.
5. One internal and one external examiner only, in a day, shall assess 20 Project Reports. The Project work should be allotted to a group of maximum 3 students.
6. One internal and one external examiner shall conduct two practical exams, in a day, of a batch of 40 students.
7. 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.C.A. - 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: Attempt any 5 questions
Duration: 3 hours   *Max Marks: 50*

BCA – 19 E-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.

Note: Attempt any 5 questions
Duration: 3 hours   *Max Marks: 50*

BCA – 20 COMPUTER NETWORK & MOBILE COMPUTING

OSI Model, significance of layer model, network, topology, network classification, switching and components.

Introduction to Ethernet, token ring, basic working and cable, bridges, routers, gateways, private and public networks

FDMA, TDMA, CDMA, personal communications system architecture,

cordless telephony, digital enhanced cordless telecommunication.

Wireless technology: Land mobile vs satellite vs inbuilding communication system, cellular telephony, personal communication system/networks.

Wireless architecture for mobile computing, wireless LANs, end user devices, MAC protocols, IEEE 802.11, mobile IP, wireless TCP, hand of adhoc networks, unicast and multicast communication, blue tooth.

Note: Attempt any 5 questions

Duration: 3 hours   *Max Marks: 50*

BCA – 21 VISUAL BASIC PROGRAMMING

Introduction: Need of Visual languages, integrated development environment (IDE), advantage of Visual Basic, characteristics and features of Visual Basic, characteristics and features of Visual Basic – IDE, Projects, user interface, objects oriented, visual development and event-driven programming, forms/graphic controls, data processing, sharing with windows and internet applications.

Visual Basic Programming and tools: An introduction of Visual Basic programming, simple program construction, statements, input/outputs, comments, editor, subroutines, controls flow statements, objects and variants.

Designing user interface – elements of user interface, understanding forms, menus and toolbars, designing menus and toolbars, building dynamic forms, drag and drop operations, working with menus, customizing the toolbars.

Controls – textbox, combo box, scroll bar and slider control operations, generating timed events, drawing with Visual Basic using graphics controls, coordinate systems and graphic methods, manipulating colors and pixels with Visual Basic.

Database Programming with Visual Basic – data access methods, creating, reading and writing text files, data controls, creating queries.

Note: Attempt any 5 questions

Duration: 3 hours   *Max Marks: 50*

BCA–22 INTERNET TOOLS AND WEBSITE DEVELOPMENT

Internet – current state, hardware and software requirement, ISP, an internet account, web home page, URL, browser, security on web, searching tools, search engines, FTP, Gopher, Telnet, emails, TFTP

Web browser architecture, web page and multimedia, static dynamic and active web page, simple mail transfer protocol, simple network management protocol, hyper text transfer protocol

Active Server Pages, features, exception handling, components, application object methods, properties, events, collection, request object methods, properties, collections, response object members.

JavaScript, comment types, JavaScript reserved words, identifiers, events, primitive data types, escape sequence, data type conversion functions and methods, operators, control structures and statements objects applet fundamentals, applet life cycle, local and remote applet applications, tags, creating and passing parameters to applets, exception handling.

Note: Attempt any 5 questions

Duration: 3 hours   *Max Marks: 50*

BCA – 23 MANAGEMENT INFORMATION SYSTEMS

Introduction to Management Information Systems (MIS): concepts, meaning elements and characteristics of MIS, MIS organization, MIS planning and building a business model.

Database and communications, definition requirement and user view of database, database software, file structure elements of a communication system and distributed data processing.

MIS technology definition of computer technology system and application software elements and support services elements.

Building and installing MIS application, development cycle analysis synthesis and implementation of MIS feasibility of installing MIS

Management and MIS, MIS aided decision making decision support systems education and training for MIS management's role in system development.

Note: Attempt any 5 questions

Duration: 3 hours   *Max Marks: 50*

BCA–24 RELATIONAL 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, multimedia 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 and SQL * Plus Data types, constraints, operators, DDL, DML, (create, modify, insert, delete and update) searching, matching and Oracle functions, data types, PL/SQL functions, Error handling in PL/SQL, package functions, package functions, package procedures, Oracle transactions, SQL Stored Procedures.

Database Triggers: Introduction, Use and type of database triggers, triggers vs declarative integrity constraints, BEFORE Vs AFTER trigger combinations, creating a trigger, dropping a trigger.

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