Bca 2011-14 syllabus essay

SCHEME OF EXAMINATION & DETAILED SYLLABUS For BACHELOR OF COMPUTER APPLICATIONS (BCA) DEGREE GURU GOBIND SINGH INDRAPRASTHA UNIVERSITY SECTOR-16C, DWARKA, DELHI Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Bachelor of Computer Applications FIRST SEMESTER EXAMINATION Code No. Paper L T/P Credits Marks Internal Marks External BCA 101 Mathematics – I 3 1 4 25 75 BCA 103 Technical Communication

BCA 105 Introduction to Programming Language using C BCA 107 Introduction to Computers & IT BCA 109 Physics 3 0 3 25 75 3 1 4 25 75 3 1 4 25 75 3 1 4 25 75 0 6 3 40 60 0 2 6 0 3 2 40 100 60 —— 17 16 27 305 495 THEROY PAPERS PRACTICALS BCA 151 Practical – I C Prog. Lab BCA 153 Practical – II IT Lab BCA Communication Skills 155* Total *NUES TOTAL MARKS : 800 Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. cademic session 2011-12 Bachelor of Computer Applications SECOND SEMESTER EXAMINATION Code No. Paper L T/P Credits Marks Internal Marks External BCA 102 Mathematics – II 3 1 4 25 75 BCA 104 Principles of Management BCA 106 Digital Electronics 3 0 3 25 75 3 1 4 25 75 BCA 108 Data Structure Using C 3 1 4 25 75 BCA 110 Database Management System 3 1 4 25 75 0 0 6 6 3 3 40 40 60 60 2 0 2 100 —— 17 16 27 305 495 THEROY PAPERS PRACTICALS BCA 152 Practical – III

DS Lab BCA 154 Practical – IV DBMS Lab BCA Cyber Ethics 156* Total *NUES TOTAL MARKS: 800 Note : A Minimum of 40 Lectures is mandatory for each course.

Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Bachelor of Computer Applications THIRD SEMESTER EXAMINATION Code No. Paper L T/P Credits Marks Internal Marks External BCA 201 Mathematics – III 3 1 4 25 75 BCA 203 Computer Architecture 3 1 4 25 75 BCA 205 Front End Design Tool VB. Net BCA 207 Principles of Accounting BCA 209 Object Oriented Programming using C++. 3 1 4 25 75 3 0 3 25 75 3 1 4 25 75 0 0 2 6 6 0 3 3 2 40 40 100 60 60 —— 17 16 27 305 495 THEROY PAPERS

PRACTICALS BCA 251 BCA 253 BCA 255* Practical – V . NET Lab Practical – VI C++ Lab Software Development Skills Total *NUES TOTAL MARKS: 800 Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Bachelor of Computer Applications FOURTH SEMESTER EXAMINATION Code No. Paper L T/P Credits Marks Internal Marks External BCA 202 Mathematics – IV 3 1 4 25 75 BCA 204 Web Technologies 3 1 4 25 75 BCA 206 Java Programming 3 1 4 5 75 BCA 208 Software Engineering 3 1 4 25 75 BCA 210 Computer Networks 3 1 4 25 75 0 6 3 40 60 0 6 3 40 60 2 0 2 100 —— 17 13 28 305 495 THEROY PAPERS PRACTICALS BCA 252 Practical – VII Java Lab BCA 254 Practical – VIII Web Tech Lab BCA Personality 256* Development Skills Total *NUES TOTAL

MARKS: 800 Summer Training will be held for 4 weeks after the end of fourth semester. Viva-Voce will be conducted in fifth semester. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic

Council held 28 th July 2011. W. e. f. academic session 2011-12 Bachelor of Computer Applications FIFTH SEMESTER EXAMINATION Code No. Paper L T/P Credits Marks Internal Marks External BCA 301 Operating System 3 1 4 25 75 BCA 303 Computer Graphics 3 1 4 25 75 BCA 305 E- Commerce 3 1 4 25 75 BCA 307 Software Testing 3 1 4 25 75 BCA 309 Microprocessor 3 1 4 25 75 BCA 311 Advance Computer Networks BCA 313 Web Based Programming BCA 315 Business Economics 3 1 4 25 75 3 1 4 25 75 3 1 4 25 75 Practical – IX CG Lab Summer Project/ Training Minor Project 0 0 8 0 4 2 40 100 60 —— — 8 4 40 60 Total 12 20 26 280 420

THEROY PAPERS ***ELECTIVES (Select any One) PRACTICALS BCA 351 BCA 355* BCA 357 *Evaluation will be based on Summer Training held after fourth semester and will be conducted by the college committee only. *** Any Elective Subject will be offered if minimum 1/3 rd of the total strength of students in the class will opt for it. **NUES TOTAL MARKS: 700 Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12

Bachelor of Computer Applications SIXTH SEMESTER EXAMINATION Code No. Paper L T/P Credits Marks Internal Marks External BCA 302 Data Ware Housing & Data Mining BCA 304 Mobile Computing 3 1 4 25 75 3 1 4 25 75 BCA 306 Linux Environment 3 1 4 25 75 BCA 308 Multimedia & Its Applications BCA 310 Bio Informatics 3 1 4 25 75 3 1 4 25 75 BCA 312 Artificial Intelligence 3 1 4 25 75 BCA 314 Network Security 3 1 4 25 75 BCA 316 Network Programming 3 1 4 25 75 0 4 2 40 60 —2 10 0 5 2 40 100 60 14 18 25 280 420 THEROY PAPERS ***ELECTIVES (Select any One) PRACTICALS BCA 352 Practical – X Linux Lab BCA 356 Major Project BCA Seminar 58** Total Note: 1. The total number of the credits of the BCA programme = 160. 2. Each student shall be required to appear for examinations in all courses. However, for the award of the degree a student shall be required to earn the minimum of 150 credits. Total Marks : 700 *** Any Elective Subject will be offered if minimum 1/3 rd of the total strength of students in the class will opt for it. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011.

W. e. f. academic session 2011-12 Paper Code: BCA 101 Paper ID: 20101 L T C Paper: Mathematics – I 3 1 4 Aim: To understand the basic concepts of mathematics. Objectives ? To get the knowledge about the matrices, determinants and limits. ? To study the basics of differential and integral calculus INSTRUCTIONS TO PAPER SETTERS: Maximum Marks : 75 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be

of 25 marks. 2. Apart from Question No. , rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12. 5 marks UNIT – I DETERMINANTS: Definition, Minors, Cofactors, Properties of Determinants, MATRICES: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramers Rule, Rank of Matrix Dependence of Vectors, Eigen Vectors of a Matrix, Caley-Hamilton Theorem (without proof) [No. of Hrs: 12] UNIT – II

LIMITS & CONTINUITY: Limit at a Point, Properties of Limit, Computation of Limits of Various Types of Functions, Continuity at a Point, Continuity Over an Interval, Intermediate Value Theorem, Type of Discontinuities. [No. of Hrs: 10] UNIT-III DIFFERENTIATION: Derivative, Derivatives of Sum, Differences, Product & quotients, Chain Rule, Derivatives of Composite Functions, Logarithmic Differentiation, Rolle's Theorem, Mean Value Theorem, Expansion of Functions (Maclaurin's & Taylor's), Indeterminate Forms, L' Hospitals Rule, Maxima & Minima, Asymptote, Successive Differentiation & Liebnitz Theorem. No. of Hrs: 12] UNIT – IV INTEGRATION: Integral as Limit of Sum, Riemann Sum, Fundamental Theorem of Calculus, Indefinite Integrals, Methods of Integration Substitution, By Parts, Partial Fractions, Integration of Algebraic and transcedental Functions, Reduction Formulae for Trigonometric Functions, Gamma and Beta Functions. [No. of Hrs: 10] TEXT BOOKS: [T1] Kresyig E. , " Advanced Engineering Mathematics", 5th Edition, John Wiley & Sons, 1999. [T2] Babu Ram, " Engineering Mathematics",

Pearson Education. [T3] Apostol Tom M, Calculus, Vol I and II John Wiley (2003). REFERENCE BOOKS: [R1] B.

S. Grewal, " Elementary Engineering Mathematics", 34th Ed. , 1998. [R2] H. K. Dass, " Advanced Engineering Mathematics", S. Chand & Company, 9th Revised Edition, 2001. [R3] Shanti Narayan, " Differential Calculas", S. Chand & Company, 1998 Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Paper Code: BCA 103 L T C Paper Id: 20103 3 0 3 Paper: Technical Communication Pre-requisites: None

Aim : To Understand the correct use of English Language and improve the Communication Skills of the students. Objectives ? To have basic understanding of the correct use of English Language. ? To improve oral as well as written communication skills. INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: 75 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks. 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions.

However, student may be asked to attempt only 1 question from each unit. Each question should be 12. 5 marks. UNIT-I Concepts and Fundamentals: Introduction to Technical Communication, meaning of communication, Importance of communication, Communication scope, types, Process of

communication, Communication models and theories, Essentials of good communication – The seven Cs of communication, Factors responsible for growing importance of communication, Channels of communication, Verbal and Non-Verbal communication, Formal and Informal communication, Barriers of, and aids to communication. T1, T2, T3, T4] [No. of Hrs: 11] UNIT-II Written Communication: Objectives of written communication, Media of written communication, Merits and demerits of written communication, Planning and preparing of effective business messages. Persuasive writing. Overview of Technical Research and Report Writing : Definition and Nature of Technical Writing, Properties/features and process of Technical Writing, Basic Principles of Technical Writing, Styles in Technical Writing, The Role of Technical Writing, The Wholistic Guide of Technical Writing , End-products of Technical Writing.

Writing Proposals. Writing Letters: Business letters, Office memorandum, Good news and bad news letters, Persuasive letters, Sales letters, Letter styles/ layout. Report Writing: Meaning & Definition, Types of report (Business report & Academic report), Format of report, Drafting the report, Layout of the report, Essential requirement of good report writing. Job Application: Types of application, Form & Content of an application, drafting the application, Preparation of resume. T1, T2, T3,] [No. of Hrs: 11] UNIT-III Oral Communication: Principles of effective oral communication, Media of oral communication, Advantages of oral communication, Disadvantages of oral communication, Styles of oral communication. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July

2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12

Interviews: Meaning & Purpose, Art of interviewing, Types of interview, Interview styles, Essential Features, Structure, Guidelines for Interviewer, Guidelines for interviewee. Meetings: Definition, Kind of meetings, Advantages and disadvantages of meetings/ committees, Planning and organization of meetings. Project Presentations: Advantages & Disadvantages, Executive Summary, Charts, Distribution of time (presentation, questions & answers, summing up), Visual presentation, Guidelines for using visual aids, Electronic media (power-point presentation).

Listening Skills: Good listening for improved communications, Art of listening, Meaning, nature, process, types and importance of listening, Principles of good listening, Barriers in listening Negotiation Skills : Definition of negotiation, Factors that can influence negotiation, what skills do we need to negotiate, Negotiation process (preparation, proposals, discussions, bargaining, agreement, implementation). Strategies to, improve oral, presentation, speaking and listening skills. [T1, T2, T3, T4] [No. of Hrs: 11] UNIT-IV

Soft Skills: Non Verbal communication- kinesics & Proxemics, parlanguage, interpersonal skills, Corporate communication skills – Business Etiquettes [T1, T2, T4] Language Skills: Improving command in English, improving vocabulary, choice of words, Common problems with verbs, adjectives, adverbs, pronouns, tenses, conjunctions, punctuations, prefix, suffix, idiomatic use of prepositions. Sentences and paragraph construction,

improve spellings, introduction to Business English. [T3, R1, R3] [No. of Hrs: 11] TEXTBOOKS: [T1] Kavita Tyagi and Padma Misra , " Advanced Technical Communication", PHI, 2011 [T2] P. D.

Chaturvedi and Mukesh Chaturvedi, " Business Communication – Concepts, Cases and Applications", Pearson, second edition. [T3] Rayudu, " C. S-Communication", Himalaya Publishing House, 1994. [T4] Asha Kaul , " Business Communication", PHI, second edition. REFERENCES: [R1] Raymond Murphy, " Essential English Grammar- A self study reference and practice book for elementary students of English" , Cambridge University Press, second edition. [R2] Manalo, E. & Fermin, V. (2007). Technical and Report Writing. ECC Graphics. Quezon City. [R3] Kavita Tyagi and Padma Misra , " Basic Technical Communication", PHI, 2011. R4] Herta A Murphy, Herbert W Hildebrandt and Jane P Thomas, " Effective Business Communication", McGraw Hill, seventh edition. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Paper Code: BCA 105 L T C Paper Id: 20105 3 1 4 Paper: Introduction to Programming Language using C Pre-requisites: None Aim : To Understand the Programming Fundamentals and the basics of the ' C' Programming Language. Objectives: To be able to build own logic for a given problem and finally develop one's own programs ? To understand the syntax and the semantics of C programming language. INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: 75 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short

answer type questions. It should be of 25 marks. 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12. marks. UNIT I C basics: C character set, Identifiers and keywords, Data types, constants, variables and arrays, declarations, expressions statements, symbolic constants, compound statements, arithmetic operators, unary operators, relational and logical operators, assignment operators, conditional operators, bit operators. C constructs: If statement, if…. else statement, if….. else if…. else statement, while statement, do…. while statement, for statement, switch statement, nested control statement, break operator, continue operator, comma operator, goto statement. .[T1, T2, T3] [No. of Hrs: 11] UNIT – II

C Functions: Functions: declaration, definition & scope, recursion, call by value, call by reference. Storage Classes: automatic, external (global), static & registers. Arrays: Arrays, pointers, array & pointer relationship, pointer arithmetic, dynamic memory allocation, pointer to arrays, array of pointers, pointers to functions, array of pointers to functions, Preprocessor directives: #include, #define, macro's with arguments, the operators # and ##, conditional compilations. [T1, T2, T3] [No. of Hrs: 11] UNIT – III Structures: Structures, unions, passing structure to functions, bit fields, file handling [text (ASCII), binary] [T1, T2, T3] No. of Hrs: 11] UNIT – IV String manipulation functions and other standard library functions from stdio. h, stdlib. h, conio. h, ctype. h, math. h, string. h, process. h. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of

Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Usage of command line arguments. [T1, T2, T3] [No. of Hrs: 11] TEXTBOOKS: [T1]Ashok N. Kamthane, " Computer Basics and C Programming", Pearson Education. [T2]E. BalaGuruswamy, " Programming in ANSI C", 2008. T3]V Rajaraman, " Computer Basics and C Programming", PHI. REFERENCES: [R1]Herbert Schildt, " C The Complete Reference" Fourth Edition, 2000. [R2]Yashwant Kanetkar, " Let us C" eighth edition, 2002. [R3]Kernighan and d. Ritchie, " The ANSI C Programming Language", 2000. [R4]Stephenn Prata, " C Primer Plus" Fourth Edition, 2001. [R5]Schaum's Outline Series, " Programming with C", 2nd Edition, 1996. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. cademic session 2011-12 Paper Code: BCA 107 L T C Paper ID: 20107 3 1 4 Paper: Introduction to Computers and IT Pre-requisites: None Aim: To provide the students Basic knowledge of computers and information technology. Objectives This is an elementary course in computers and information technology. Upon completion of this course the student should be able to: ? Discuss the evolution of computers in different generations. ? Classify computers in different categories based on their capabilities. ? Describe the major components of computers and information technology applications: Hardware, software, data, processes, computer networks and people. Demonstrate an understanding of the importance of algorithms in the development of IT applications. INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: 75 1. The paper setters are required to restrict upto the

overview of the concepts. 2. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks. 3. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12. 5 marks.

UNIT – I Introduction to Computers: The evolution of computers: Computer Generation from First Generation to Fifth Generation. Classifications of Computers: Micro, Mini, Mainframe and super computers, Distributed Computer System, Parallel Computers. Computer Hardware: Major Components of a digital computer, Block Diagram of a computer Input-output devices, Description of Computer Input Units, Output Units. CPU. Computer Memory: Memory Cell, Memory Organization, Read Only Memory, Serial Access Memory, Physical Devices Used to construct Memories, Magnetic Hard disk, floppy Disk Drives, Compact Disk Read Only Memory, Magnetic Tape Drives. T1][R1] [No. of Hrs: 12] UNIT – II Interaction With Computers: Computer Software: System software, assemblers, compilers, interpreters, linkers Elementary Operating System concepts, different types of operating systems, Application Software: Introduction to MS Office (MS-Word, MS Powerpoint, MS-Excel) Computer Programming and Languages: Algorithms, flow chart, decision tables, pseudo code, Low level languages and introduction to high level languages. [T1][T2][R3] [No. of Hrs: 12] UNIT – III Computer Number System: Decimal, Binary, Octal, Hexa-decimal.

Conversion: Decimal to all other number systems, Binary to octal and hexa decimal, Addition of binary numbers, Binary subtraction, Use of complements

to represent negative numbers, Conversion of a binary fraction to a decimal fraction and decimal to binary fraction, Binary Coded Decimal(BCD), ASCII Codes, EBCDIC codes, Gray codes, Unicodes. [T1][R1] [No. of Hrs: 10] Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. cademic session 2011-12 UNIT – IV Computer Network & Internet Basic elements of a communication system, Data transmission modes, Data Transmission speed, Data transmission media, Digital and Analog Transmission, Network topologies, Network Types (LAN, WAN and MAN), Client and Servers , Intranet, Extranet. Internet: Terminologies related to Internet: Protocol, Domain name, IP address, URL, World Wide Web. Overview of various services on Internet: E-mail, FTP, Telnet, Chat , Instant Messaging. [T1][T2][R1][R2] [No. of Hrs: 10] TEXT BOOKS [T1] P. K. Sinha & Priti Sinha , " Computer Fundamentals", BPB Publications, 1992. T2] Anita Goel " Computer Fundamentals", Pearson. REFERENCE BOOKS [R1] B. Ram Computer fundamentals Architecture and Organization, New Age Intl. [R2] Alex Leon & Mathews Leon, " Introduction to Computers", Vikas Publishing . [R3] Norton Peter, " Introduction to computers", 4th Ed. , TMH, 2001. [R4] Vikas Gupta, " Comdex Computer Kit", Wiley Dreamtech, Delhi, 2004. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011.

W. e. f. academic session 2011-12 Paper Code : BCA 109 L T C Paper ID: 20109 3 1 4 Paper : Physics Aim: To know the fundamentals of Physics

Objectives ? To get the knowledge about the basic laws of nature such as motion, work, power and energy ? To study the electrostatics, semiconductors and devices. INSTRUCTIONS TO PAPER SETTERS: MAXIMUM MARKS: 75 1. Question No. 1 should be compulsory and over the entire syllabus. It should be of 25 marks and it may contain objective or short type question. 2. Rest of the paper shall contain two questions from each unit.

However students will attempt only one question from each unit. Each question should be 12. 5 marks. UNIT – I Law of Motion: Force and Inertia, Law of inertia or Newton's first law of motion, Newton's Second law of motion, Newton's third law of motion and it's applications, Basic forces in nature, Weight of body in lift, Equilibrium of concurrent forces, Lemi's Theorem Friction: Cause of friction, Types of friction, Laws of friction, Angle of friction and repose, Centripetal and centrifugal force, velocity of vehicle on curved leveled and banked road. [T1] [T2] [No. of Hrs: 11]

UNIT – II Work, Energy & Power: Work, Conservative force, Power, Kinetic Energy, Work energy theorem, Potential Energy, Conservation of gravitational P. E. into K. E. , P. E. of spring. Collisions: Types of collision, elastic collision in 1D & 2D, Inelastic collision in 1D, Perfectly inelastic collision in 1D. [T1] [T2] [No. of Hrs: 11] UNIT – III Electricity & electromagnetism: Electric charge, Electron theory of electrification, Frictional electricity, Properties of electric charge, Coulomb's Law, Superposition Principle, Electric field intensity, Electric Lines of forces.

Electrostatics: Line integral of electric field, Electrostatic potential, State & Proof of Gauss's theorem. Capacitance: Principal of Capacitor, Parallel and

spherical capacitors, Grouping of capacitors and their capacitance, Effect of dielectric in capacitors. Current Electricity: Current, Ohm's Law, Resistance, Grouping of resistance, Krichoff's rule, Wheatstone bridge, Slide Wire Bridge. [T3] [T4] [No. of Hrs: 11] UNIT – IV: Structure of Atom: Thomson's atomic model, Rutherford's alpha scattering experiment and atomic model, Postulates of Bohr's Model.

Semiconductors: Energy bands in solids, Difference between metals, insulators and semi conductors, Current carriers in semiconductors, Intrinsic semiconductor, Doping, Extrinsic semiconductors, Formation of p-n junction, Biasing of p-n junction, Light emitting diode. Transistors: Action of n-p-n & p-n-p transistors, Advantages of transistors, Integrated Circuit. [T3] [T4] [No. of Hrs: 11] TEXTBOOKS: [T1]: S. K. Gupta, " Modern ABC of Physics", Vol1, Modern Publishers. Note : A Minimum of 40 Lectures is mandatory for each course.

Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 [T2]: Pradeep, " Fundamental Physics", Class XI, Pradeep Publications. [T3]: S. K. Gupta, " Modern ABC of Physics", Vol2, Modern Publishers. [T4]: Pradeep, " Fundamental Physics", Class XII, Pradeep Publications. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. cademic session 2011-12 Paper Code: BCA 102 Paper ID: 20102 Paper: Mathematics – II L 3 T 1 C 4 Aim: To understand the basics concepts of

Discrete Mathematical Structures. Objectives ? To get the Knowledge about sets, relations and functions. ? To study the basics of lattices and graphs. ? To get familiar with propositional logic. INSTRUCTIONS TO PAPER SETTERS: Maximum Marks : 75 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks. 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus.

Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12. 5 marks UNIT I SETS: Sets, Subsets, Equal Sets Universal Sets, Finite and Infinite Sets, Operation on Sets, Union, Intersection and Complements of Sets, Cartesian Product, Cardinality of Set, Simple Applications. RELATIONS AND FUNCTIONS: Properties of Relations, Equivalence Relation, Partial Order Relation Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions, Hashing functions, Recursive function. [T1][T2] [No. f Hrs: 11] UNIT – II PARTIAL ORDER RELATIONS AND LATTICES: Partial Order Sets, Representation of POSETS using Hasse diagram, Chains, Maximal and Minimal Point, Glb, lub, Lattices & Algebric Systems, Principle of Duality, Basic Properties, Sublattices, Distributed & Complemented Lattices. [T1][T2] [No. of Hrs: 10] UNIT-III Graphs: types and operations(bipartite graph. Subgraph, distance of a graph, cut-edges & cut vertices, isomorphic and homomorphic graphs), degree of graphs, adjacent and incidence matrices, path circuit(Floyd's and Warshall algorithms), hamiltonian graph, graph colouring. [T1][T2] No. of Hrs: 12] UNIT – IV Propositional Logic: Proposition, First order logic, Basic logical operation, truth tables, tautologies,

contradictions, Algebra of Proposition, logical implications, logical equivalence, predicates, Universal and existential quantifiers. [T1[T2] [No. of Hrs: 11] TEXT BOOKS: [T1]Rosen, K. H. , Discrete Mathematics and its Applications, McGraw Hill, (2006) 6th ed. [T2]Kolman, Busby and Ross, " Discrete Mathematical Structure", PHI, 1996. [T3]Babu Ram, " Discrete Mathematics", Pearson Education REFERENCE BOOKS: [T1]S. K. Sarkar, " Discrete Maths"; S. Chand & Co. , 2000.

Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 [T2]Tremblay, J. P. and Manohar, R. , Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw Hill, (2007). Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011.

W. e. f. academic session 2011-12 Paper Code: BCA – 104 L T C Paper ID: 20104 3 3 0 Paper: Principles of Management Pre-requisites: None Aim: To understand the function of management and their application in the corporate world. Objectives ? To get the knowledge about the important management concepts & their application, ? To have an insight of various functional departments in an organization. ? To make students well versed with programming in java. INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: 75 1. Question No. 1 should be compulsory and cover the entire syllabus.

This question should have objective or short answer type questions. It should be of 25 marks. 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12. 5 marks. UNIT – I Management: Meaning & concept, Management principles (Fayol & Taylor), Management process (in brief), Managerial levels, Roles & skills of a manager, Management Theories (Classical, Neo classical, Behavioral, Systems & Contingency) [Elementary] [T1, R1] [No. f hrs. -12] UNIT – II : Planning: Meaning, Purpose & process, Decision making: Concept & process, Organizing: Process, Departmentation, Authority & Responsibility relationships, Decentralization. Staffing: Nature & Importance, [T1, R1] [No. of hrs. -10] UNIT-III Staffing: Concept, nature & importance of staffing. Directing: Motivation: concept & theories (Maslow's, Herzberg Two factor, McGregor's theory X & Y) , Leadership: Concepts & styles. Controlling: Nature, Importance, significance & Process of control. [T1, R1] [No. of hrs. -12] UNIT – IV

Managing People – Meaning, Need of understanding human behavior in organization, Models of OB, Major concepts in OB (elementary)- Personality, Learning, Perception & Attitude Building. [T1, R2, R3] [No. of hrs. -10] TEXT BOOKS [T1] Dr. C. B Gupta " Management concepts & practices" S. Chand & Sons, 2009. REFERENCE BOOKS [R1] Stoner, Freeman & Gilbert, " Management" 6th Edition, Pearson International. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011.

W. e. f. academic session 2011-12 [R2] [R3] Ankur Chhabra, " Organisational Behaviour", Sun India Publications, 2009 Robbins, Stephen P, " Organisational Behaviour". PHI, 2010 Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Paper Code: BCA – 106 Paper: Digital electronics Paper Id 20106 Pre-requisite : ? Physics Aim ? L 3 T/P 1 C 4 To understand various digital systems and their applications. Objectives To learn about the design principles of different digital electronic circuits ? To study the applications of above circuits INSTRUCTIONS TO PAPER SETTERS: MAXIMUM MARKS: 75 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks. 2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12. 5 marks. UNIT-I Logic gates NOT , AND, OR, Universal gates- NAND , NOR.

EX-OR and EX-NOR gates. Diode and Transistor as a switch Logic Families- RTL, DTL, TTL, ECL, CMOS – (Main features only – without details of circuit connections and working). Definition of- current and voltage parameters, noise margin, Fanin, Fan-out Boolean Algebra Basics Laws of Boolean Algebra, Logic Gates, Simplifications of Boolean equations using K-maps. [T1, T2, T3] [No. of Hrs: 11] UNIT-II Review of various number systems (Binary, Octal, Hexadecimal), Definition of BCD , Gray codes and Excess – 3 codes

and their application (without design of code convertors) Parity generation and Checking.

Arithmetic Circuits Adder, Subtractor, Parallel binary adder/Subtractor, binary multiplier and dibvider. Combinational Circuits Multiplexers, De-Multiplexers, decoders, encoders,. [T1, T2, R3] [No. of Hrs: 11] UNIT-III Flip-flops S-R, D, J-K, T, Clocked Flip-flop, Race around condition, Master slave Flip-Flop, Realisation of one flip-flop using other flip-flop. Shift Registers Serial-in-serial-out, serial-in-parallel-out, parallel-in-serial-out and parallel-in-parallel-out, Bi-directional shift register. [T1, T2, R3] [No. of Hrs: 11] UNIT-IV Counters

Ripple counter, Synchronous Counter, Modulo Counters, Ring Counter, Twisted Ring Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Counter. Memory Devices – RAM, ROM, PAL & PLA [T1, T2, T3, R3] [No. of Hrs: 11] TEXT BOOKS [T1]. Moris Mano, " Digital Logic and Computer Design", PHI Publications, 2002. [T2]. Raj Kamal, " Digital Systems " , Principles and Design, Pearson , 2011. [T3]. R. P.

Jain, " Modern Digital Electronics", TMH, 3rd Edition, 2003. REFERENCES: [R1]. R. L. Tokheim, " Digital Electronics, Principles and Applications", Tata McGraw Hill, 1999. [R2]. W. Gothman, " Digital electronics", PHI. [R3]. S. Salivahanan & S. Arivyhgan. " Digital circuits and design", Vikas Publication, 2001. [R4]. Malvino Leach, " Digital Principles and Application", TMH, 1999. Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of

Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12

Paper Code: BCA 108 L T C Paper ID: 20108 3 1 4 Paper : Data Structures Using C Pre-requisites: BCA 105 Aim : To Understand the use of the basic data structures along with their applications. Objectives ? Understand the use and working of the various data structures. ? Learn to be able to build own algorithms and pseudocodes for the various applications of the basic data structures. INSTRUCTIONS TO PAPER SETTERS: Maximum Marks: 75 1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks. 2. Apart from Question No. , rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12. 5 marks. UNIT-I Introduction to Data Structures : Basic Terminology, Elementary Data Organizations, Classification of data structures and its operations. Arrays: Representation of single and multidimensional arrays (up to three dimensions) ; sparse arrays – lower and upper triangular matrices and Tri-diagonal matrices; addition and subtraction of two sparse arrays. (Multidimensional, and, sparse arrays, to be given elementary treatment. Stacks and Queues: Introduction and primitive operations on stack; Stack application: Polish Notations; Evaluation of postfix expression; Conversion from infix to postfix; Introduction and primitive operations on queues; D-queues and priority queues. [T1, T2, T3] [No. of Hrs: 11] UNIT-II Lists: Introduction to linked lists; Sequential and linked lists,

operations such as traversal, insertion, deletion, searching, Two way lists and Use of headers Trees: Introduction and terminology; Traversal of binary trees; Recursive algorithms for tree operations such as traversal, insertion and deletion; [T1, T2, T3] [No. f Hrs: 11] UNIT-III Introduction to and creation of AVL trees and m-way search trees – (elementary treatment to be given); Multilevel indexing and B-Trees: Introduction; Indexing with binary search trees; Multilevel indexing, a better approach to tree indexes; Example for creating a B-tree. [T1, T2, T3] [No. of Hrs: 11] UNIT-IV Sorting Techniques: Insertion sort, selection sort and merge sort. Searching Techniques: linear search, binary search and hashing. (Complexities NOT to be discussed for sorting and searching) [T1, T2, T3] [No. of Hrs: 11] Note : A Minimum of 40 Lectures is mandatory for each course.

Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 TEXTBOOKS: [T1] Ashok N. Kamthane, " Introduction to Data Structures in C", Pearson Edu. [T2] Y. Langsam, Tananbaum, et. al. , " Data Structures using C and C++", PHI, 1999. [T3] Schaum's outline series, " Data Structure", TMH, 2002 REFERENCES: [R1] Yashwant Kanetkar, " Data Structures Through C", BPB Publications, 2008 [R2] A. K. Sharma, " Data Structure Using C", Pearson [R3] P. S. Deshpande and O. G.

Kakde, " C & Data Structure", Wiley Dreamtech, 1st Edition, 2003. [R4] Richard F. Gilberg & Behrouz A. Forouzan, " Data Structures – A Pseudocode Approach with C", second edition, COURSE TECHNOLOGY, CENGAGE Learning [R5] E. Horowitz and S. Sahani, " Fundamentals of Data Structures",

Galgotia Booksource Pvt. Ltd, 2003 Note : A Minimum of 40 Lectures is mandatory for each course. Syllabus of Bachelor of Computer Applications (BCA), approved by BCA Coordination Committee on 26 th July 2011 & SubCommittee Academic Council held 28 th July 2011. W. e. f. academic session 2011-12 Paper Code: BCA 110 Paper ID: 20110 Paper: Database Management System