

Govind Guru Tribal University, Banswara

SYLLABUS

Bachelor of Computer Application

BCA Part-I Examination	2018
BCA Part-II Examination	2019
BCA Part-III Examination	2020

Bachelor of Computer Applications (BCA)

Eligibility for Admission to BCA course session 2017-18 "A candidate must have passed 10+2 examination (Arts/Science/Commerce) or equivalent with securing 48% or more (minimum pass mark for SC/ST/OBC/SBC candidates) in aggregate without any approximations".

In regard to reservation of Seats for admission to BCA Part I, the reservation policy of Govt. of Rajasthan/University of Rajasthan will be followed.

Admission Procedure: Admission to BCA Part I course will be made on the basis of merit list (10+2 level).

Attendance: A candidate shall be required to put in a minimum of 75% attendance at the lectures and 75% attendance at the practicals separately in each paper, as per university norms.

Scheme of Examination for Bachelor of Computer Applications(BCA):

The Bachelor of Computer Applications will be a Three Part Course in Faculty of Science extending over three academic sessions. Medium of instructions and examination will be English only. There shall be an examination at the end of each part. Each theory paper examination will be of three hour duration and shall carry 100 marks. Theory paper shall contain three parts. All questions are compulsory.

Part – I (very short answer) consists 10 questions of two marks each with two questions from each unit. Maximum limit for each question is up to 40 words.

Part – II (short answer) consists 5 questions of four marks each with one question from each unit. Maximum limit for each question is up to 80 words.

Part – III (Long answer) consists 5 questions of twelve marks each with one question from each unit with internal choice

Each practical examination (Maximum marks 100) will be of four hour duration on one day and carry 60 marks for exercises(3 exercises) assigned in the examination, 25 marks for viva-voce and 15 marks for practical records and regularity of the candidate. Other rules and procedures of examinations will be common to those for B.Sc. course.

A candidate will be promoted to Part III if he/she passed with 40% in three theory and two practical papers of Part II examination and with at least 50% in aggregate of these papers. However, if the candidate has not passed Part I examination then also he/she be promoted to part III if the number of due papers (part I & Part II together) does not exceed four theory papers and two practical papers "

Passing of Examination and Promotion to next Part: A candidate must secure at least 10% mark in each paper and 40% marks in aggregate for passing a paper's examination.

candidate will be promoted to part II if he/she has secured at least 40% in **three theory and two practical papers** of part I examination and with at least 50% in aggregate of these papers. A candidate will be promoted to Part III if he/she has passed 40% in **three theory and two practical papers** of Part II examination and with at least 50% in aggregate of these papers, and has passed Part I examination.

Division and Honors: On successful passing out of all three part examinations (in first attempt), those securing 75% and above in aggregate of all the three parts will be awarded **First division with Honors**, and those securing between 60% or more but less than 75% will be awarded **First division** and rest will be awarded **Second division**.

BCA Part - I

	Subject	Hours / Week	Max. Marks
Theory			
BCA	Elementary Physics	4	100
BCA	Basic Mathematics	4	100
BCA	General English	4	100
BCA	Principles of Programming Language (Through 'C')	4	100
BCA	Computer Organization	4	100
BCA	Office Management Tools	4	100
Practical			
BCA	Technical Writing and Communication Skills	3	100
BCA	C- Laboratory	3	100
BCA	Office Automation Laboratory	3	100
BCA	Typing Skills Laboratory (English and Hindi Language)	3	100

BCA Part - II

Code	Subject	Hours / Week	Max. Marks
Theory			
BCA-201	Business Accounting	4	100
BCA-202	Discrete Mathematics	4	100
BCA-203	Operating System	4	100
BCA-204	Database Management System	4	100
BCA-205	Web Designing and Multimedia	4	100
Elective (Any One)			
BCA-206(A)	Object Oriented Programming Concepts (Through 'C++')	4	100
BCA-206(B)	Programming Through VB6.0	4	100
Practical			

BCA-207	Database Laboratory	3	100
BCA-208	Object Oriented Laboratory	3	100
BCA-209	Web Designing Laboratory	3	100
BCA-210	Multimedia Laboratory	3	100

BCA Part - III

Code	Subject	Hours / Week	Max. Marks
Theory			
BCA-301	Data Structure (Using C/C++)	4	100
BCA-302	System Design Concepts	4	100
BCA-303	Networking Technologies	4	100
BCA-304	Core Java Programming	4	100
BCA-305	E-Commerce	4	100
Elective (Any One)			
BCA-306(A)	ASP.Net	4	100
BCA-306(B)	PHP	4	100
BCA-306(C)	Linux and Shell Programming	4	100
Practical			
BCA-307	Networking Laboratory	3	100
BCA-308	Core Java Laboratory	3	100
BCA-309	Elective Laboratory	3	100
BCA-310	Project	3	100

BCA101: Elementary Physics

Question Paper pattern for Main University Examination

Max Marks: 100

Part - I (very short answer) consists 10 questions of two marks each with two questions from each unit
Maximum limit for each question is up to 40 words.

Part - II (short answer) consists 5 questions of four marks each with one question from each unit
Maximum limit for each question is up to 80 words.

Part - III (Long answer) consists 5 questions of twelve marks each with one question from each unit
with internal choice.

UNIT-I

Electric charge, conductors and insulators, Coulomb's Law, quantization and conservation of electric charge, the electric field, electric lines of force and Gauss' Law of electrostatics, electric potential energy, electric potential, energy and electrical power.

Capacitors, capacitance, capacitors in series and parallel, capacitors with dielectric. Electric current, resistance, resistivity and conductivity, Ohm's law, electromotive force, series and parallel combination of resistances, current in a single loop, Kirchoff's current law, Kirchoff's Voltage law.

UNIT-II

Magnetic field due to a bar magnet, Biot Savrt's law, magnetic field due to a current carrying coil, Force between two parallel currents, Magnetic field inside solenoid and toroid, magnetic flux, Faraday's law of electromagnetic induction, magnetic properties of matter, (diamagnetic, paramagnetic, ferromagnetic and ferromagnetic materials), inductance, energy stored in an inductor, LR circuits.

UNIT-III

Introduction to Logic and implementation with Logic Gates, Logic functions-NOT,AND,OR NOR, EX-NOR, Truth tables, Boolean Algebra, de Morgan's theorems; Standard forms for logical expressions, Sum of Products, Product of Sums specification of logical functions in terms of Minterms and Maxterms, Karnaugh Maps, simplification of logical functions, introduction of "don't care" states, Synthesis using only NAND or only NOR gates.

UNIT - IV

Combinational Circuits: Multiplexer-IC 74150 and IC 44151, De multiplexer-IC 74154, Decoder-IC 74139, BCD to Seven segment De-coder IC 7446/7447 IC 7448/7449 Decimal to BCD Priority Encoder-IC 7417, parity Checker IC 74180, Magnitude Comparator IC 7485.

UNIT - V

Sequential Circuits : RS Flip Flop, Clocked RS Flip Flop, D Flip Flop, Edge Triggered D Flip Flop, master-Slave Technology and its advantage, Shift Register as Flip Flop system, IC 7496, UP/DOWN counters, 74 series asynchronous counters, 74 series synchronous

Reference books

1. Bernard Grob: Basic Electronics, Tata Mc Graw Hill.
2. Fowler: Electricity, Tata Mc Graw Hill.
3. Shrivakumar, Engineering Physics, Tata Mc Graw Hill
4. Iyer: Circuit Theory, Tata Mc Graw Hill
5. S. Sivasubramanian and S. Aravamudan, Digital Circuits, and Design, Atlas Publishing House, Pvt.
6. R.P. Jain, Modern Digital Electronics, Tata Mc Graw Hill, 2nd Edition, Copyright 1997, New Delhi.

BCA102: Basic Mathematics

Question Paper pattern for Main University Examination

Max Marks: 100

Part – I (very short answer) consists 10 questions of two marks each with two questions from each unit. Maximum limit for each question is up to 40 words.

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Part - III (Long answer) consists 5 questions of twelve marks each with one question from each unit with internal choice.

UNIT – I

Functions : Functions, domain & range of a function, types of functions-constant, identity, polynomial, exponential, logarithmic, trigonometric, inverse- trigonometric, rational, periodic, modulus, signum and greatest integer functions with their graphs, Composite functions, Invertible Functions.

Function domain and range, one to one and onto functions, composite functions, inverse of functions, Binary operations.

UNIT - II

Matrices and Determinant : Definition and Types of Matrices, Addition , Subtraction and Multiplication of Matrices, Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix(restrict to square matrices of order 2), Scalar Multiplication, Transpose of a Matrix.

Determinant of a square matrix (up to 3×3 matrices), properties of determinants, minors , cofactors, expansion of determinants, application of determinants in finding the area of a triangle. Invertible matrices. Adjoint and Inverse of a matrix, Solution of system of linear equations by inverse matrix method and Cramer's Rule, Eigen Values, Eigen Vectors.

UNIT - III

Co-ordinate Geometry : Cartesian co-ordinate system, Polar coordinate system, distance between two points, section formulae, Area of a triangle, Locus and its Equation, Straight Line- Equation of straight line, slope form, two point form, intercept form, normal form, distance of a point from a line, condition of concurrency of three lines, Pair of straight lines, angle between two lines, equation of a line parallel or perpendicular to a given line, Standard equations of a Circle

Quadratic Equation: Solution of Quadratic Equations, Nature of Roots. Solution of a quadratic equation by factorization method and Shridharacharya's formula, relation between the roots of a quadratic equation, formation of quadratic equation from given roots.

UNIT -IV

Statistics : Frequency Distribution, Graphical representation of frequency distribution. Mean, Median, Mode and other measures of Central Tendency, Dispersion, Standard Deviations, Variance, Correlation and regression, Measure of Karl Pearson's coefficient of correlation, regression analysis, properties of regression lines.

UNIT -V

Probability: Factorial notation $n!$, Combinations and Permutations, Classical approach of Probability- trial & events, exhaustive events, equally likely events, mutually exclusive events, favourable events, independent events. Classical or mathematical definition of probability. Law of addition of probabilities. Multiplication law of probability and conditional probability. Simple problems based on addition and multiplication law of probabilities.

Reference Books:

1. C.L. Liu: Elements of Discrete Mathematics, Tata Mc-Graw Hill Publishing Company Ltd., 2000
2. Seymour Lipschutz; Discrete Mathematics;TMH.
3. Richard Johnsonbaugh: Discrete Mathematics, Pearson Education, Asia, 2001
4. John Truss: Discrete Mathematics for Computer Scientists, Pearson Education, Asia, 2001.
5. Basic Mathematics, R.D. Sharma
6. B.L. Agrawal, Basic Statistics, Khanna Pub.
7. Stephen Bernsiem: Elements of Statistics, TMH.
8. SC GUPTA, VK KAPOOR, FUNDAMENTAL OF STATICS, SULTAN CHAND & SONS

BCA103: General English

Question Paper pattern for Main University Examination

Max Marks: 100

Part - I (very short answer) consists 10 questions of two marks each with two questions from each unit. Maximum limit for each question is up to 40 words.

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Part - III (Long answer) consists 5 questions of twelve marks each with one question from each unit with internal choice.

UNIT-I

Concepts and Fundamentals : Narration, Active and Passive, Modals, Subject Verb Concord, Subordination, Coordinations, Meaning of communication, Importance of communication, Communication scope, Process of communication, Communication models and theories, Essentials of good communication, The seven C's of communication, Verbal and Non-Verbal communication, Barriers to Effective Communication, Barriers to communication, BBA01

UNIT-II

Written Communication : Objectives of written Communication, Media of written communication, Merits and demerits of written communication, Planning business messages.

Writing Letters : Business letters, Office memorandum , Good news and bad news letters . Persuasive letters . Sales letters , Letter styles/ layout.

UNIT-III

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.

Language Skills : Improving command in English ,Choice of words, Common problems with verbs, adjectives, adverbs, pronouns, conjunctions, punctuation, prefix, suffix etc.

UNIT-IV

Oral Communication : Principles of effective oral communication, Media of oral communication, Advantages of oral communication, Disadvantages of oral communication. Styles of oral communication.

Interviews : Meaning & Purpose, Art of interviewing, Types of interview, Interview styles. Essential Features, Structure , Guidelines for Interviewer, Guide lines for interviewee.

Arts of Listening : Good listening for improved communications, Art of listening, Meaning, nature and importance of listening, Principles of good listening, Barriers in listening.

UNIT V

Job Application : Types of application, Form & Content of an application, Drafting the application, Preparation of resume.

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)

Recommended Books

1. Communication by C. S. Rayudu, Himalaya Publishing House
2. Communication Today – Understanding Creative Skill by Reuben Ray, Himalaya Publishing House
3. Success in Communication by Mulla Farooq
4. Business Communication Today by Bhatia & Dhillon, McGraw Hill
5. Communication Skills and report writing by Prof. K. Mohan, Dr. Jai Mahaling Hill

BCA104: Principles of Programming (Through 'C')

Question Paper pattern for Main University Examination

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Part – III (Long answer) consists 5 questions of twelve marks each with one question from each unit with internal choice.

UNIT- I

Basic concepts of Programming languages, Programming Domains, Language Evaluation criteria and language categories, Evolution of major programming languages. Describing syntax and semantics formal methods of describing syntax, Pseudo code, Design of Algorithm & Flowchart

UNIT- II

Fundamentals of C: History and importance of C, sample programming, basic structure and execution of C programs, constants, variables, and data types and various type of declarations, different type operators and expressions, evaluation of expressions, operator precedence and associability. Managing input and output operations, decision making and branching decision making.

UNIT- III

Iteration: while, do...while, for loop, nested loops, break & continue, goto statements.
Arrays and Strings: One-dimensional arrays and their declaration and initialization, two-dimensional arrays and their initializations, character arrays (One and Two dimensional), reading and writing strings, string - handling functions.

UNIT-IV

Functions: Need and elements for user defined functions, definition of functions, return values and their types, function calls and declaration, recursion, parameter passing, passing arrays and strings to functions, the scope, visibility and life time of variables.

Understanding Pointers: Accessing the address of a variable, declaration and initialization of pointer variables, accessing a variable through its pointer, pointers and arrays, pointers and function arguments, functions returning pointers.

UNIT -V

Structures and Unions: Defining structure, declaring structure variable and accessing structure members, initialization of structure, operation on individual members, and array of structures, union, size of structure

Recommended Books:

1. Gottfried B; Programming with C: Schaum Qutlines; Mc Graw Hill Edition.
2. Balagurusamy E; Programming in ANSI C;Fifth Edn; Mc Graw Hill,2011.
3. Kanetkar Y.; LET US C; X Edition, BPB,2010.
4. Deitel HM & Deitel JP; C How to program; 5th Edn; Pearson Pub

BCA105: Computer Organization

Question Paper pattern for Main University Examination

Max Marks: 100

Part – I (very short answer) consists 10 questions of two marks each with two questions from each unit. Maximum limit for each question is up to 40 words.

Part – II (short answer) consists 5 questions of four marks each with one question from each unit. Maximum limit for each question is up to 80 words.

Part – III (Long answer) consists 5 questions of twelve marks each with one question from each unit with internal choice.

UNIT- I

Computer System History and Architecture development von Neumann machine, Mother Board, System clock, Bus (Data, Address Control), Bus architecture (ISA, MCA, EISA, PCI, AGP), Expansion slots and cards (Network adapter cards, SCSI card, Sound card, TV tuner card, PC card), Ports (Serial Parallel, AGP, USB Fire Wire), cables (RS 232, BIN), Input devices Output devices . Storage devices, random versus sequential access, formatting, tracks and sectors, speed, storage capacity, Floppy Disk, Hard Disk tracks, cylinders, sectors, Hard Drive Interfaces Optical Disks . Magnetic tape, Modern (Fax/Data/Voice)

UNIT-II

Basic building blocks I/O, Memory, ALU and its components, Control Unit and its functions, Instruction word, Instruction and Execution cycle, branch, skip, jump and shift instruction, Operation of control registers; Controlling of arithmetic operations, Classification of Computers (Workstation, Mainframe, Super Computer, Client Server Computer, Notebook, Tablet, Palm Top Computer)

UNIT-III

Basics of Computer organization system buses and instructions cycles, memory subsystem organization, system buses and instruction cycles, memory subsystem organization and interfacing I/O subsystem organizations and interfacing, Register transfer languages, CPU design - specifying a CPU, design and implementation of a simple CPU (fetching instructions from memory, decoding and executing instructions establishing required data paths, design of ALU, design of the control unit and design verification), design and implementation of a simple micro sequential, Features of Pentium microprocessors

UNIT-IV

Addressing modes, Direct, indirect, Immediate, Indirect, Index, Addressing and passing Parameters, Link and General purpose registers, program control flow - start

thesaurus, mail merge, handling graphics, tables, converting a Word document into various formats like-text, rich text format, Word perfect. etc.

UNIT- III

MS Excel: Worksheet basics, creating worksheet, entering data into worksheet, data, text, dates, alphanumeric values saving & quitting worksheet, opening and moving around in an existing worksheet, Toolbars and menus, Keyboard shortcuts, working with single and multiple workbook, working with formula & cell referencing, Auto sum, coping formulas, absolute and relative addressing, formatting of worksheet, previewing & printing worksheet, Graphs and Charts, Database, macros, multiple worksheets-concepts.

UNIT- IV

Power Point: Creating and viewing a presentation, managing Slide Shows, navigating through a presentation, using hyperlinks, advanced navigation with action setting and action buttons, organizing formats with Master Slides, applying and modifying designs, adding graphics, multimedia and special effects.

UNIT- V

Microsoft Access: Planning a database (tables, queries, forms, reports), creating and editing database, customizing tables, linking tables, designing and using forms, modifying database structure, Sorting and Indexing database, querying a database and generating reports.

Reference Books:

1. Microsoft; 2007/2010 Microsoft Office System; PHI.
2. Microsoft; Microsoft Office 2007/2010: Plain & Simple; PHI.
3. Microsoft; Microsoft Office XP: Plain & Simple; PHI.
4. Sanjay Saxena; A First Course in Computers 2003 Edition; Vikas Pub.

BCA 107 : Technical Writing and Communication Skills

Practical Lab Exercises based on Theory Paper BCA 103.

BCA 108 : C Laboratory

Practical Lab Exercises based on Theory Paper BCA 104

BCA 109 : Office Automation Laboratory

Practical Lab Exercises based on Theory Paper BCA 106

BCA 110 : Typing Skills Laboratory (English and Hindi Language)