

# Syllabus of BCA First Year

## HONS.-First Year

### PAPER-I

Full Marks-100

(Theory-75, Practical-25)

#### Group-1

### COMPUTER FUNDAMENTALS

**Introduction to Computers :** What is Computer? Comparison between computer and human brain, Characteristics of computer, Computer applications.

**History of computers :** Initial development, Generation of computer, Evolution of Personal Computer.

**Computer Organization :** Basic Units of computer, Block diagram of computer, Input unit, Processing unit, Output unit, Storage unit.

**Types of Printers :** Hard copy output, Impact printers, Non-impact printers, Serial and line printers, Dot-Matrix printers, Laser printers, Daisy wheel printers, Drum and chain Printers, Thermal printers.

**External storage devices :** SASD, DASD, Punch cards, Magnetic Tapes, Blocking utilization factor, Magnetic Disk, Tracks, Sectors, Seek time, Rotational latency, Access time, Numerical problems.

**Types of Computers :** Digital, Analog, Hybrid Computers, General purpose Computers, Turnkey Systems, Micro computers, Mini computers, Mainframes, Super Computers.

**Data Representation :** Number Systems, Binary system, Binary to Decimal and Decimal to Binary conversion. Binary addition, 2's complement representation, Binary subtraction, ASCII and EBCDIC coding.

**Computer Software :** Machine language, Assembly language, High level languages, Compilers, Interpreters, Assemblers. Centralized processing, Decentralized processing, Distributed processing, Management Information System.

**Processing Modes :** Uniprocessor, Multiprocessor, Batch processing, off line data entry, On-line processing, On-line data entry, real Time processing. Time sharing processing. Electronic mail, Tele text, Tele conferencing.

**Programming Concepts :** Programme definition, Characteristics of good programme, Programming steps, algorithms, Flowcharts.

#### Group-2

### INTRODUCTION TO COMPUTER ARCHITECTURE

- ❖ Introduction to microprocessors and associated components, Timer, display controllers, DMA controllers.
- ❖ Block diagram of IBM PC. Evolution of microprocessor. Family of Intel microprocessor, introduction to 8086 & 8088 architecture.
- ❖ Functional description of various modules & cards, CISC & RISC technology. Various types of displays and other peripherals used in IBM PCs.
- ❖ Boot process in IBM PC. System files. Self text.
- ❖ Disk Operating System Introduction, File management. Directory Structure in DOS. Internal and External commands of DOS.
- ❖ Batch files, Configuration files. System files, COM, BIN, SYS, EXE & TXT files.

#### Group-3

### PROGRAMMING LOGIC AND DESIGN TECHNIQUES

- ❖ Programme development, low-level programming language, high-level languages, programming aids, programming techniques, Programming tools, Program Maintenance.
- ❖ Techniques of programming (Algorithm, flowchart, pseudo codes). Introduction to programming in QBASIC structured Programming - Introduction. Need of structured programming Development of programme in QBASIC.

#### Group-4

### PRACTICAL

- ❖ **Visit to computer lab :** Introduction to various components of a computer. A simple documentation preparation and printing. Usage of printer and other components.
- ❖ Use of External and Internal DOS commands. Programming in QBASIC.
- ❖ Physical inspection of IBM PC and internal cards. Introduction to nomenclature (COM1, COM2, etc). Writing batch files for various purposes. Modify config.sys files. Creating using QBASIC programmes.



## PAPER-II

Full Marks-100

(Theory-75, Practical-25)

### Group-1

## OPERATING SYSTEMS

- ❖ Introduction to various categories of softwares. Operating system and its function interaction of operating system with hardware and user programme.
- ❖ Various components of operating system with reference to DOS, BIOS, BIOS and DOS interrupts. Single user operating system, Task loader, Memory management.
- ❖ Device management. Control of various devices. Device drivers interrupts driven and poll driven data transfers. Need of software and hardware protocols.
- ❖ Multi-user, Multi tasking, multi processing and real time operating system. Introduction to memory management techniques.
- ❖ File systems, File Management. Process management and scheduling.
- ❖ Special requirements and facilities for multiprocessing environment.
- ❖ Examples of multiprocessing operating systems. Introduction to UNIX. User management in UNIX.
- ❖ Computers in office automation: Nature and uses of information, Formal and Informal Information and Communication, Gathering and Presenting Information.
- ❖ System life cycle, documentation, testing, debugging, Implementation

### Group-2

## BUSINESS APPLICATIONS

- ❖ Database organization, Database files, records, fields, types of files in database.
- ❖ File organization : Sequential file, Random file, Indexed file, Windows 98 / 2000, MS-Office.

### Group-3

## PROGRAMMING WITH FOXPRO

### FOXPRO : VIEWING AND EDITING DATA

- ❖ FoxPro-version, features, requirements of hardware and software
- ❖ FoxPro- Menu system
- ❖ creating database file, operation of database (create, list, append, close, quit)
- ❖ FoxPro-data type
- ❖ Data displaying and monitoring commands: display,

list locate, edit, change, browse, replace, delete, recall, pack (all commands with various options)

- ❖ File utilities in FoxPro- display directory, copy delete, rename

### FOXPRO : INDEXING, SORTING AND PRINTING REPORT

- ❖ Indexing concept and sorting
- ❖ Sort commands-single & multiple key
- ❖ Advantages and disadvantages of sort
- ❖ Indexing vs sorting & multiple key
- ❖ Indexing, find, seek, rushmore technology
- ❖ Foxpro report- its creation, feature & utilities, preview, printing custom report, grouping & sub grouping.
- ❖ Foxpro level-designing and printing

### FOXPRO : Memory variables. Keyboard Macros and Function

- ❖ Memory variables-creation and uses, simple vs array
- ❖ Saving and restoring memory variables
- ❖ ?/?/?/? commands
- ❖ Time & date functions and commands, date arithmetic
- ❖ Converting defining function keys
- ❖ Arithmetic operations, Mathematical functions, mathematical Commands, Statistical Functions

### PROGRAMMING AND ERROR DEBUGGING :

- ❖ Concept of FoxPro commands file, Modify commands
- ❖ Conditioning, branching and looping within Programme file with Do-While Enddo, if-Endif, Scan-Endscan, For-Endfor, Do case-Endcase, Text-Endtext, Executing commands from other command files, Macro substitution
- ❖ Common Error Message
- ❖ Debugging techniques and commands

### MULTIPLE DATA FILE AND CUSTOM SCREENS:

- ❖ Concept of Multiple Database File, Using multiple database-SET RELATION, UPDATE, APPEND FROM, COPY TO, JOIN, Relation Query by example.
- ❖ Concept of Multiple Database File, Using multiple database-SET RELATION, PDATE, APPEND FROM, COPY TO JOIN, Relation Query by example.
- ❖ Create custom screen with @, @\_GET, @EDIT, @SAY\_GET\_READ, Creating Box & Line, User define functions, Custom Screen Designing and their uses, FoxDoc for Documentation

- ❖ Text & References:
- ❖ FOXPRO made Simple: by R. K. Taxali, BPB
- ❖ MASTERING FOXPRO 2.5 BPB Publication

### Group-4

## PRACTICAL

- ❖ Development of a batch files to install software from floppy to disk. Development of a batch files to manage various packages on the disk. Detection of viruses and protection packages on IBM PC. MS-OFFICE, WINDOWS 98/2000.



## Subsidiary

### FIRST YEAR

#### ENGLISH

- ❖
  - ♦ Julius Caesar (William Shakespeare)
  - ♦ New Polgrave's Treasury (Poetry),
  - ♦ Love (Gorge Herbert),
  - ♦ On His Bindness (John Mittonb).
  - ♦ Ode To a Nightingale (John Keats)
  - ♦ Arms and the Man (George Gemard Show), A Little Leaming (A.Pope), The World Too Much With Us (William Shakespeare), Break Break Break (A.L. Tennyson)

#### ECONOMICS

- ❖ Micro & Macro Economics, Utility analysis Law of Demand, Elasticity of demand, Consumer's Surplus. Lavs of profit, Principles of population, Cost Analysis. Perfect competition & Monopoly & Price determination. National fncome, Social Accounting & Principles Of distributor. Rent, Interest, Wages, Profit Planning, Functions of money, in Economics. Principles of Quantitative of Money 4 Principles of savings cost Waiton- consequence. Causes, Remedies, Commercial & Central Bank: functions, I.M.F. & World Bank : Functions, Law of Taxation, Profits, Salaries, Ability & Principles. Causes of Public Expenditure : Consequence & Cases, International Trade, Comparative Cost Principle of International Trade. Free Trade & Production.

#### Hindi (100 Marks)

हिन्दी रचना पद्य एवं गद्य	-	80 अंक
हिन्दी व्याकरण	-	15 अंक
वाक्य संशोधन मुहावरे लोकोक्तियाँ	-	5 अंक
निर्धारित पाठ्य ग्रंथ- काव्य के सोपान स्व० डॉ० लक्ष्मण प्रसाद सिन्हा अथवा सरल हिन्दी		
काव्य- स्व० डॉ० नेपाल नाथ मिश्र 'ख' कथाअंजली- स्व० डॉ० सत्येन्द्र नारायण शर्मा, निर्धारित कहानियों,		



उससे कहा था, सच का सौदा, मूर्ख क्रोधा, सुभान खाँ, संबंधा सती। अथवा, कथा कथ राम विनोद सिंह 'ग' सप्तरंगिनी स्व० डॉ० दिवाकर अथवा गद्य के रूप डॉ० वंशीधर लाल, लिंग, वचन, कारक, काल संधि समास, उपसर्ग, प्रत्यय !

## MATH

### Group A :

- ❖ **Set Theory Abstract Algebra** : Notation of Sets and Their Algebra, Cartesian Product, Relation and Mapping and Their Classification Equivalence Relation and Partition of Sets, Countable Sets, Countable Sets.
- ❖ **Abstract Algebra** : Binary Operations, Notions of Group, Sub Group Cyclic Group and Permutation Group Elementary Concepts of Ring, integral domain and field with examples.

### Group B :

- ❖ **Matrices and its Algebra Kinds of Matrices** (Unitary, matrix, Hermitian Matrix) transpose adjoint, Inverse and orthogonal Matrices, Notations of Rank of Matrix.
- ❖ **Linear Programming** : Convex sets and their properties LPP Problem and their Graphical Solution, Theory of Simplex Method and Applications.

### Group C :

- ❖ **Trigonometry and Real analysis** : DeMoivre's theorem and its Applications. Complex arguments and Hyperbolic functions Gregory series.
- ❖ **Real Analysis** : Sequence and their convergence Cauchy's General Principle of convergence, Convergence & Divergent series of the Positive terms, comparison test, Cauchy's root test, D'Alembert's Test, Alternation series, Continuity and differentiability.

### Group D :

- ❖ **Co-ordinate Geometry two dimensions** : System of circles, Radical Axis, Co-axial Circles. The Parabola, The Ellipse, The Hyperbola, Conies. Analytical.

### Group E :

- ❖ **Geometry of three dimensions** : Relations and Notations between two straight lines, equations of planes and straight line condition for coplanarity of straight lines. The shortest distance between two lines. Sphere.