## Unit-I
### Reading
- Presentation of Good Posture
- Butterflies in Jeopardy
- The Family Group: The Extended and the Nuclear Family
- Diseases of Civilisation
- The Housefly
- The Living World
- Reasoning of Animals
- The Organisation of Social Life
- Animal Language
- The Relative influence of Heredity and Environment
- Temperature Regulation
- General Objectives of the United Nations Organisation
- A Child, A Home – and Love
- The Handicapped: Hidden no longer

## Unit-II
### Writing – 1
- Prefixes/Suffices
- Phrasal verbs & Idioms
- Synonyms and antonyms
- One word substitutes
- Registers

## Unit-III
### Writing – 2
- Paragraphs, developing points/ideas
- Formal and Informal Letters (applications, invitations etc)

## Unit-IV
### Writing – 3
- Answering questions, Summary, Notes based on the prescribed text: “Corridors to Communication.”

## Books Prescribed
1. David Jolly: Writing Tasks: AN authentic task approach to individual writing needs, Cambridge: Cambridge University Press. 1988
### Unit-I

**Introduction to Number Systems:**
- Introduction to number systems
  - Binary
  - Octal
  - Decimal
  - Hexadecimal

**Conversions:**
- Binary
  - Octal
  - Hexadecimal

**Arithmetic (Addition, Subtraction):**
- Radix Complement method
- Radix-1 complement method

**Character Codes (ASCII, EBCDIC, BCD):**

**Representation of Numbers: (Integer):**
- Signed Magnitude
- 1’s Complement,
- 2’s Complement,
- Excess notation

**Error Detection and Correction codes:**
- Parity bit method
- Hamming code method

### Unit-II

**Basic Gates, Multiplexer, Flip-Flop, Decode, Encoder**

**Logic Gates:**
- AND, OR, NOT
- NAND, NOR, XOR

**Multiplexers:**
- 8 to 1 multiplexer
- 16 to 1 multiplexer, Nibble multiplexer

**Demultiplexers:**
- 1 to 8 demultiplexer
- 1 to 16 demultiplexer

**Decoders:**
- 1 of 16 decoder
- BCD to decimal Decoder
- Seven segment Decoders

**Encoders**
- Decimal to BCD Encoder
- Half Adder, Full Adder
- Half Subtractor, Full Subtractor
- Binary Adder
- 2’s Complement Adder and Subtractor

**Flip-Flops**
- RS Flip Flop: NOR and NAND Latch
- D latch with time diagram
### Unit-III  Processor: Functions and components
- Instruction Execution cycle
- CPU Organization: Data path of a atypical Von-Neumann machine
- Functioning of a processor of hypothetical computer
- Parelle Instruction Execution,
- Categories of Parallel Machines
- Array Processors, Multi- functioning units
- Pipeline Machines
- Multiprocessors
- Immediate Addressing, Direct Addressing
- Register Addressing, Indirect Addressing
- Indexing, Stack Addressing

### Unit-IV  SAP-1 Architecture
- SAP-1 Architecture
- Instruction Set: LDA, ADD,SUB, OUT,HLT
- Programming SAP-1, Fetch Cycle, Execution Cycle
- MChine and Instruction cycle, SAP-1 Micro program
- Microprogramming

### Unit-V  Overview of I/O and Memory devices
- Overview of I/O Devices
  - Hard disk
  - Floppy disk
  - CD ROM (Introduction, Advantages and Disadvantages)
  - Introduction to RAM,ROM,PROM,EPROM,EPRROM)
- Printers:
  - Dot Matrix (Fig. On page 69 Ref . Book – 1)
  - Inkjet
  - Laser-jet (Fig. on page 105 Ref. Book-2)
- VDU, Mouse,Keyboard
- Scanner
- Plotter
- OCR (MICR, Barcode Reader)

### Unit- VI  Operating System
- Introduction to Operating System
- Functions Operating System
- Introduction to various types of OS:
  - Time Sharing
  - Real Time
  - Distributed Systems
- Disk Operating System (DOS) – Functions
- Internal DOS Commands:
  - Dir, Date, Prompt($sp$), Copy, Del, Ren, Cd, Md, Rd
- External DOS Commands:
  - Chkdsk, Scandisk, Format, Move, More, Attrib
- Windows Operating System (Win- 98)
  - Introduction
  - Working with Windows
  - Operations on Files and Folders

### REFERENCE BOOKS:
2. Introduction to computers and communication: D. Ravichandran
Course: BCA – 103 : Discrete Mathematics
Effective from :June 2003

No. of Credit : 3
No. of Lectures per week: 3
External Marks: 80
Internal Marks : 40
Total Marks     : 120
University exam duration 3 hours.

Unit-I
Sets
Set operations, Algebra of sets, Finite sets and counting principle, Classes of
sets, Power sets, Mathematical induction, Symmetric difference, Functions,
Composition of functions, One-to-One, onto and invertible functions,
Recursively defined functions, Cardinality and cardinal numbers

Unit-II
Vectors and Matrices
Vectors in IR^n, Dot product and norm, Matrix addition and scalar
multiplication, Matrix multiplication, Transpose of a matrix, Square
matrices, Invertible matrices, Special types of square matrices – diagonal,
upper and lower triangular, Symmetric, Skew symmetric Orthogonal
matrices: Determinants of order up to three and Cramer’s rule

Unit-III
Algebraic System
Operations and semi groups, Groups and subgroups, Group homomorphism,
Rings, Integral domains, Fields, Polynomials over a field

Unit-IV
Graph Theory
Graph and multigraph, Degree of a vertex, Pathsm Connectivity Subgraphs,
Connected components, Cut points, Bridges, Traversable multigraphs,
Matrices and graphs

Unit-V
Planar Graphs and Trees
Planar graphs, Maps and regions, Euler’s Formula, Nonplaner graphs,
Coloured graphs, Colours and maps, trees

Unit-VI
Combinatorial Analysis
Counting principle, Binomial coefficients, Permutations and combinations,
Ordered and unordered partitions, Tree diagram

Reference Books:
1. S. Lipshutz and Marc Lars Lipson : Discrete – Mathematics, Schaum’s series
SARDAR PATEL UNIVERSITY
Course: BCA – 104: Introduction to Programming in C
Effective from: June 2003

No. of Credit: 3
No. of Lectures per week: 3
External Marks: 80
Internal Marks: 40
Total Marks: 120

University exam duration: 3 hours.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Concept of Algorithm and Flow Chart Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Requirement (Needs) of Algorithm and flow chart, definition</td>
</tr>
<tr>
<td></td>
<td>- Symbols used to draw flow chart</td>
</tr>
<tr>
<td></td>
<td>- Typical (Primitive) examples of flow chart and algorithms</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Language Fundamental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Generation of computer languages</td>
</tr>
<tr>
<td></td>
<td>- High – Low level languages</td>
</tr>
<tr>
<td></td>
<td>- Translator, Machine Language</td>
</tr>
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<td></td>
<td>- Editors and detail about any one of the editor (T.C)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Logic Development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Problem Analysis</td>
</tr>
<tr>
<td></td>
<td>- Variables, Expressions and its manipulation</td>
</tr>
<tr>
<td></td>
<td>- Data types in High level language</td>
</tr>
<tr>
<td></td>
<td>- Operators used for calculation</td>
</tr>
<tr>
<td></td>
<td>- I/O statements, Assignment statement</td>
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</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Structured Programming and Advance Computing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Control Strategies, Condition and Loop Statements</td>
</tr>
<tr>
<td></td>
<td>IF…ELSE structure, SWITCH structure</td>
</tr>
<tr>
<td></td>
<td>FOR loop, WHILE loop, DO…WHILE loop</td>
</tr>
<tr>
<td></td>
<td>- Method of Structured Programming, Subroutines</td>
</tr>
<tr>
<td></td>
<td>Functions and procedures</td>
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</table>

<table>
<thead>
<tr>
<th>Unit</th>
<th>Complex Data Types</th>
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<tbody>
<tr>
<td></td>
<td>- Arrays</td>
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<tr>
<td></td>
<td>- String Handling</td>
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<tr>
<td></td>
<td>- Structure</td>
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<td></td>
<td>- Union</td>
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<table>
<thead>
<tr>
<th>Unit</th>
<th>Pointers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Introduction to Pointers</td>
</tr>
<tr>
<td></td>
<td>Pointer to Array, Pointer to Structure, Pointer to function, Pointer to structure array, Pointer to Pointer, Pointer Arithmetic, Array of pointers, Pointers and Recursion (Factorial, Fibonacci Series)</td>
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<tr>
<td></td>
<td>- Storage Memory</td>
</tr>
<tr>
<td></td>
<td>Malloc, calloc, alloc, realloc, free</td>
</tr>
<tr>
<td></td>
<td>- Storage Classes</td>
</tr>
<tr>
<td></td>
<td>Auto, static, register, extern</td>
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</table>

Reference Books:

**SARDAR PATEL UNIVERSITY**  
**Course: BCA – 105 : Database Management System**  
**Effective from :June 2003**

No. of Credit : 3  
No. of Lectures per week: 3  
External Marks: 80  
Internal Marks : 40  
Total Marks :120

University exam duration 3 hours.

<table>
<thead>
<tr>
<th>Unit-I</th>
<th>Database Management System</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Basic Concepts</td>
</tr>
<tr>
<td></td>
<td>Data, Information, Field, Record, Database File, Database, DBMS, Primary Key, Foreign key</td>
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<tr>
<td></td>
<td>Drawbacks of Traditional File</td>
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<tr>
<td></td>
<td>Advantages and Disadvantages of DBMS</td>
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<tr>
<td></td>
<td>Components of DBMS</td>
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<td>Structure of DBMS</td>
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<td></td>
<td>Database Life Cycle</td>
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<table>
<thead>
<tr>
<th>Unit-II</th>
<th>Data Models</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data Models</td>
</tr>
<tr>
<td></td>
<td>E-R Modeling</td>
</tr>
<tr>
<td></td>
<td>Entity, Attribute, Relationship &amp; Types, Mapping Cardinality, Membership Class of the entity type, Rules of drawing ER Model</td>
</tr>
<tr>
<td></td>
<td>Relational Data Model : Concept, Example, Advantages, Disadvantages</td>
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<tr>
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<td>Normalization : 1NF, 2NF, 3NF</td>
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</table>

<table>
<thead>
<tr>
<th>Unit-III</th>
<th>Database Management System (Foxpro)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Creation of Database file</td>
</tr>
<tr>
<td></td>
<td>Listing contents of Database file</td>
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<tr>
<td></td>
<td>Searching for information</td>
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<tr>
<td></td>
<td>Editing data</td>
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<tr>
<td></td>
<td>Replacing data</td>
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<tr>
<td></td>
<td>Deleting Data</td>
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<tr>
<td></td>
<td>Modify structure of Database file</td>
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<tr>
<td></td>
<td>Utility Commands :COPY to &lt;file&gt;, APPEND From&lt;file&gt;</td>
</tr>
<tr>
<td></td>
<td>Mathematical Commands</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit-IV</th>
<th>Programming &amp; Built in Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Creation, Execution &amp; Modification of Command files</td>
</tr>
<tr>
<td></td>
<td>Decision Making and loops</td>
</tr>
<tr>
<td></td>
<td>Sorting and indexing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit-V</th>
<th>Built in Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mathematical, String, Date &amp; Time Functions</td>
</tr>
<tr>
<td></td>
<td>Setting Environmental Commands</td>
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</table>

<table>
<thead>
<tr>
<th>Unit-VI</th>
<th>Advanced Features</th>
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<tbody>
<tr>
<td></td>
<td>Procedure Files</td>
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<tr>
<td></td>
<td>Arrays</td>
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<tr>
<td></td>
<td>Menu Creation</td>
</tr>
<tr>
<td></td>
<td>Handling &amp; Linking Multiple Database Files:</td>
</tr>
<tr>
<td></td>
<td>Reports and Labels</td>
</tr>
</tbody>
</table>

**Reference Books:**

2. R.K.Taxali :Programming in Foxpro 2.5, BPB Publication
3. Henson & Henson : Database Management and Design
## SARDAR PATEL UNIVERSITY

**Course: BCA – 106 : Computer Application in Business**  
**Effective from : June 2003**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Introduction to Word processor, Spreadsheet and presentation tools.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- PC Software classification</td>
</tr>
<tr>
<td></td>
<td>- Usage of word processor, spreadsheet and power point</td>
</tr>
<tr>
<td></td>
<td>- Formatting of text and paragraph</td>
</tr>
<tr>
<td></td>
<td>- Mail merge features</td>
</tr>
<tr>
<td></td>
<td>- Tables: Creation, cells split and merge, functions :-sum,avg,min,max</td>
</tr>
<tr>
<td></td>
<td>- Options of print window</td>
</tr>
<tr>
<td></td>
<td>- Types of views for power point</td>
</tr>
</tbody>
</table>

## Unit-II  
**Advance Spreadsheet features**

- Formatting of rows/columns  
- Hide, unhide, delete, insert, copy, paste, resize.  
- Functions : syntax and meaning of : Avg, count, max, min, sum, product, power, int, round, trunk.  
  - String:- Len, upper, lower, mid  
  - Logical :-If, and, or , not  
  - A/C :-FV,PV,DB,DDBPMT, RATE  
  - Macro facilities and charts  
  - Intro. To pivot table and protection for sheet and book security on file level

## Unit-III  
**Introduction to Business Application**

- Meaning and objectives of Bookkeeping and Accountancy  
- Accounting terminologies  
- Types of transactions : cash, credit and exchange  
- Principle of Double Entry  
- Types of Accounts :Personal, Real and Nominal  
- Rules for Debit and Credit  
- Accounting Concepts ad Conventions

## Unit-IV  
**Accounting process**

- Journal  
- Ledger Posting  
- Trial balance : Meaning, Purposes, Format and Examples

## Unit-V  
**Final Accounts and Depreciation Accounting**

(A) Final Accounts of Sole Traders including  
- Trading Account  
- Profit and Loss Account  
- Balance Sheet  
- Adjustment entries for closing stock, depreciation, outstanding expenses, prepaid expenses, accrued income, incomereceived in advance, bad debts and bad debts reserve only.  
- Format of company Balance Sheet in Horizontal from excluding examples


## Unit-IV  
**Inventory, Sales and Distribution**

(A) Inventory :Meaning of Inventory , Economic Order Quantity (EOQ)
System, Re-Order Quantity System, Inventory Levels: Ordering Level/Re-Order Level, Minimum Level, Maximum Level, Average Stock level, Inventory Valuation Methods: Average, Weighted Average, LIFO, FIFO. (Theory Only)

(B) Sales and Distribution: Meaning, importance and channels of distribution. Demonstration of any accounting software.

Reference Books:
2. R.L. Gupta: Principles and practices of accounting
These are the sample definitions:

**Draw flow chart & C programs for the following:**

1. To prepare a cup of tea.
2. To open a Bank Account.
3. To purchase a railway ticket for Bombay (from Anand).
4. To find maximum from the given 3 numbers.
5. To find simple interest.
6. To read three sides of a triangle and print whether it will form a triangle or not.
7. To find the solution of a quadratic equation.
8. To find out N! (Factorial of N).
9. To find out minimum from N numbers.
10. To find whether given number is prime or not.
11. To print the N terms of Fibonacci series (i.e. 1,1,2,3,5,8,11…).
12. To read a number & check whether it is a palindrome or not.
13. To find out value of \( \binom{N}{R} \).

**To find the sum of the following series:**

14. Sum = 1+3+5+7… up to N terms.
15. Sum = 5-10+15-20+25… up to N terms.
16. Sum = 1+1+2+3+5+8+13… up to N terms.
17. Sum = 1^2+2^2+3^2+4^2+5^2… up to N terms.
18. Sum = 1!+2!+3!+4!… up to N terms.
19. To read marks of three subjects and find the percentage of it. Also, print the appropriate class. Here,
   - If percentage < 40 then class is “pass”
   - If 40 <= percentage < 48 then class is “pass”
   - If 48 <= percentage < 60 then class is “second”
   - Else class is “first”
   To find the value of Sum for the following
20. SUM = X + X/2! + X/3! + X/4!… up to N terms.
21. Sum = 1 – \( \frac{1}{2} \) – \( \frac{1}{3} \) – \( \frac{1}{4} \) – \( \frac{1}{5} \)… up to N terms.
22. To find the sum of the digits in a given positive number.
23. To input a time as a number of seconds after midpoint
   And Outputs ot as hours: minutes: seconds, For example, if the input were 50000 the output should be 13:53:20.
24. To read the price of one dozen bananas and calculate
   And print the total cost of N bananas.
25. To read a number and find whether it is divisible by two or not.
26. To accept a positive integer and check whether it is One digited, two digited or three digited otherwise print appropriate message.
The following are the sample definitions:

1. Create a database for salesman which contains information such as salesman number, name, gender, region, sales date, number of quantity sold, price, etc. Find:
   a) Information of sales persons who has sold more than 200 quantities.
   b) Information of female sales persons who are working in North.
   c) Region wise sales report
   d) Month wise sales report.

2. Create a database for a farmer which contains information such as farmer’s name, land size, crop, livestock, Milk production etc. Find
   a) Information of farmers who have more than 300 acres of land.
   b) Information of farmers who grow particular crop.
   c) Information of farmers who have more than 100 acres land and more than 2 animals.
   d) Milk Production Report.
   e) Crop wise report.

3. Create a database for panchayat of a village containing information for each family in the village such as number of female members, male members, children, educated members, earning members, race and religion, occupation etc. Find.
   a) Information of families having more than 3 children.
   b) For a particular region, give information of families earning more than Rs. 25 per day.
   c) Report on occupation, male, female, children.

4. Applications such as Payroll, Baking, Inventory, transportation System, Examination System, Monitoring System, Hospital System etc.
No. of Credit : 2
No. of Lectures per week: 4
External Marks: 60
Internal Marks : 30
Total Marks :90

University exam duration 2 hours.

The following are the sample definitions:

1. **MS-WORD**
   - Creating the documents with Special effects like underline, bold, different size, different font, different color etc.
   - Find and Replace operations like cut, paste, copy, clipboard.
   - Inserting Date & Time, Pictures, Bullets & Numbering etc.
   - Paragraphs, bullets, indentation, etc. Formatting features.
   - Printing the documents, it includes paper size, margins, header and footer, page no. etc.
   - Creating a Table.
   - Mail merge, spell check, draw table.
   - Template.

2. **MS-POWERPOING**
   - Creating a presentation
   - Inserting/Deleting Slides
   - Different slides
   - Editing slides
   - Formatting slides
   - Slide transition & adding special effects.
   - Inserting sound, picture, chart, organization chart.

3. **MS-EXCEL**
   - Creating Worksheets
   - Printing, Inserting, Deleting, Copying, Moving Worksheets.
   - Formulas, built in functions
   - Graph – Plotting facilities
   - Database Management System
   - Using externally created data files.
   - What – if analysis
   - Formatting cells, worksheets etc.
   - Custom Controls
   - Protection Facility
   - Pivot tables
   - Macro Facility


**Unit-I**

**Listening – 1**
- Short lectures, descriptions, narrations, rapid talks, passages read aloud and/or dictated
- Conversations based on familiar situations.

**Unit-II**

**Listening – 2**
- Identify language functions
- Take and make notes from audio and video Cassettes and CDs.

**Unit-III**

**Speaking – 1**
- Use greetings and formulae in everyday conversation.
- Use various notions and functions (invitations, offering advice and apologies, agreement or disagreement etc)
- Use grammatically correct and appropriate structures.
- Use appropriate, related registers (See List-5 in the Appendix)
- Participate in conversations in familiar situations, and on telephone.

**Unit-IV**

**Speaking – 2**
- Give short formal and informal talks
- Speeches
- Participate in Group Discussions.

**Teaching aids Prescribed:**
- Person to Person – a BBC Video Course. Teachers may use other courses as per their needs but testing will be based on this Course.

**Books Recommended**
- Grant Taylor : English Conversation Practice, New Delhi: TMH.

**Testing :Division of Marks**

<table>
<thead>
<tr>
<th>BCA-110 : Communication Skills in English (Practical)</th>
<th>60 Marks</th>
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<tbody>
<tr>
<td>1. Listening Comprehension</td>
<td>15 Marks</td>
</tr>
<tr>
<td>2. Dictation</td>
<td>05 Marks</td>
</tr>
<tr>
<td>3. Note Taking. Making</td>
<td>15 Marks</td>
</tr>
<tr>
<td>4. Reading Aloud</td>
<td>10 Marks</td>
</tr>
<tr>
<td>5. Speaking on topics set</td>
<td>05 Marks</td>
</tr>
<tr>
<td>6. Diary Writing ( in Journal)</td>
<td>10 Marks</td>
</tr>
</tbody>
</table>