Interdisciplinary Courses of Computer Science & Applications

Session 2021 -22

Sr. No.	Course Code	Program	Course Title	
1.	BCSM-1134 BECM-1134 BARM-1134	B.A./B.Sc. Computer Science Semester I	Computer Fundamentals and PC Software	Click Here
2.	BCSM-2134 BECM-2134 BARM-2134	B.A./B.Sc. Computer Science Semester II	Programming in C	Click Here
3.	BCSM-3134 BECM-3134 BARM-3134	B.A./B.Sc. Computer Science Semester III	Computer Oriented Numerical And Statistical Methods	Click Here
4.	BCSM-4134 BECM-4134 BARM-4134	B.A./B.Sc. Computer Science Semester IV	Data Structures	Click Here
5.	BCSM-5134 BECM-5134 BARM-5134	B.A./B.Sc. Computer Science Semester V	Database Management System	Click Here
6.	BCSM-6134 BECM-6134 BARM-6134	B.A./B.Sc. Computer Science Semester VI	Information Technology	Click Here
7.	BECM-1124 BARM-1124	B.A./B.Sc. Computer Applications Semester I	Computer Fundamentals and PC Software	Click Here
8.	BECM-2124 BARM-2124	B.A./B.Sc. Computer Applications Semester II	Programming in C	Click Here
9.	BECM-3124 BARM-3124	B.A./B.Sc. Computer Applications Semester III	Operating System	Click Here
10.	BECM-4124 BARM-4124	B.A./B.Sc. Computer Applications Semester IV	Relational Database Management Systems	Click Here
11.	BECM-5124 BARM-5124	B.A./B.Sc. Computer Applications Semester V	Internet and Web Designing	Click Here

12.	BECM-6124 BARM-6124	B.A./B.Sc. Computer Applications Semester VI	Business Data Processing	[Click Here](#)
13.	BCRM-1127	B.Com. (Pass) Semester I	Computer Fundamentals	[Click Here](#)
14.	BCOP-1127	B.Com. (Hons.) Semester I	Workshop on Office Package	[Click Here](#)
15.	BBRM-1127	BBA Semester I	Computer Applications for Business- I	[Click Here](#)
16.	BFDM-1126	B.Sc. (Fashion Designing) Semester I	Basics of Computer	[Click Here](#)
17.	BOPM-3135	B.Sc. (Honours) Physics Semester III	Python Programming	[Click Here](#)
18.	BHSM-1127	B.Sc. (Home Science) Semester I	Computer Basics	[Click Here](#)
19.	BHSM-2127	B.Sc. (Home Science) Semester II	Computer Applications for Home Scientists	[Click Here](#)
20.	BOMM-2137	B.Sc. (Hons.) Mathematics Semester II	Computer Fundamentals and Introduction to C Programming Language	[Click Here](#)
21.	BOMM-3135	B.Sc. (Hons.) Mathematics Semester III	Python Programming	[Click Here](#)
22.	BOMM-4135	B.Sc. (Hons.) Mathematics Semester IV	Foundation of Statistical Computing	[Click Here](#)
23.	BACM-4128	B.Sc.(Hons.) Agriculture Semester IV	Agri-Informatics	[Click Here](#)
24.	MCML - 4122	Master of Commerce Semester- IV	E - Commerce	[Click Here](#)
25.	MCHM-1135	M.Sc. (Chemistry) Semester I	Computer for Chemists	[Click Here](#)

| 26. | MZOM-1134 | M.Sc. (Zoology) Semester I | Computer Programming & Data Processing | Click Here |
| 27. | MECM-2125 (OPT- XI) | Master of Arts (Economics) Semester – II | Computer Applications for Economists | Click Here |

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- I
Session 2021-22
Course Code: BARM-1134
BCSM-1134
BECM-1134

COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)
(THEORY)

Examination Time: (3+3) Hrs.	**Max. Marks: 100**
	Theory: 50
	Practical: 30
	CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I
Fundamentals of Computer: Introduction to computer, Applications of computer, Components of computers (Input unit, Output Unit, Memory Unit & CPU), type of Software, Translators (compiler, interpreter, assembler), Booting a System.

UNIT II
Input and Output Devices: Keyboards, Mouse, Joystick, Track Ball, Light Pen and Data Scanning devices (scanner, OCR, OMR, MICR, Bar Code Reader, Card Reader), Monitor, Printers (laser printer, dot matrix printer, ink jet printer).

Memories: Primary Memory-RAM and ROM. **Secondary Memory**- Hard Disk, CD, DVD.

Introduction to Windows based operating system and Desktop icons.

UNIT III
Word Processing: Introduction to word, Parts of window of word (Title bar, menu bar, status bar, and ruler), understanding the Ribbon, Use of Office Button and Quick Access Toolbar, Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header &footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document. Creating a table, entering and editing, Text in tables. Changing format of table,

height, width of row/column. Editing, deleting Rows, columns in table. Adding picture, page colors and Watermarks, Borders and shading, Templates, wizards, Mail Merge.

UNIT IV

PowerPoint Presentation: Introduction to PowerPoint, exploring menus, starting a new slide, saving presentation, moving/rearranging slides, printing slides. Applying theme to presentation, Views (slide View, slide sorter, notes view, outline view), Formatting & enhancing text formatting. Creating a graph, displaying slide show, adding multimedia. Slide transitions, applying Animation, Timing slide display, adding movies & sounds. Using a pick look Wizards to change format.

References/Textbooks:

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3. Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.
5. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- I
Session 2021-22
COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS AND PC SOFTWARE) (PRACTICAL)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                      Theory: 50
                                                      Practical: 30
                                                      CA: 20

Practical on PC Software - Office.

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- II
(Session 2021-22)
Course Code: BARM-2134
BCSM-2134
BECM-2134

COMPUTER SCIENCE
(PROGRAMMING IN C)
(THEORY)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Data Representation, Introduction to Number Systems and Character Codes, Flow Charts, Problem Analysis, decision tables, pseudo codes and, algorithms.

UNIT–II Programming Using C:

Basics of C: Introduction to C, Applications and Advantages of C, Tokens, Types of Errors

Data Types: Basic & Derived Data Types, User Defined Data Types, Declaring and initializing variables.

Operators and Expressions: Types of operators (Unary, Binary, Ternary), Precedence and Associativity

Data I/O Functions: Types of I/O function, Formatted & Unformatted console I/O Functions
UNIT–III

Control Statements: Jumping, Branching and Looping–Entry controlled and exit controlled, Advantages/Disadvantages of loops, difference between for, while and do–while.

Arrays: Types of Arrays, One Dimensional and Two-Dimensional Arrays.

Strings: Introduction to Strings and String functions, array of strings.

Functions: User Defined & Library Function, Function (Prototype, Declaration, Definition), Methods of passing arguments, local and global functions, Recursion.

Storage Classes: Introduction to various storage classes, scope and lifetime of a variable, Storage class specifiers (auto, register, static, extern), advantages and disadvantages.

Structure and Union: Introduction to structure and union, pointers with structure.

References/Textbooks:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th edition.
2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4th edition.
3. Rachhpal Singh K.S. Kahlon, Gurvinder Singh, Programming in C, Kalyani Publishers (2011).
4. Yashwant Kanetkar, Let us C, BPB Publications (2020), 17th edition.
5. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4th edition.
6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th edition.

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- II
(Session 2021-22)
Course Code: BARM-2134
BCSM-2134
BECM-2134**

**COMPUTER SCIENCE
(PROGRAMMING IN C)
(PRACTICAL)**

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                            Theory: 50
                                                         Practical: 30
                                                                CA: 20

Practical on Programming in C.

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- III
Session 2021-22
Course Code: BARM-3134
BCSM-3134
BECM-3134

COMPUTER SCIENCE
(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)
(THEORY)

Examination Time: (3+3) Hrs.   Max. Marks: 100
                                                                                              Theory: 50
                                                                                              Practical: 30
                                                                                              CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use Non–programmable/ scientific & Non–storage type calculator.

Unit –I

Introduction: Numerical methods, Numerical methods versus numerical analysis, Errors and Measures of Errors. Bisection method, false position method and Newton Raphson method.
Simultaneous Solution of Equations: Gauss Elimination Method, Gauss Jordan method, Gauss Siedel Method.

Unit -II
Interpolation: Interpolation and Curve Fitting, Lagrangian Polynomials, Newtons Methods: Forward Difference Method, Backward Difference Method and Divided Difference Method.

Numerical Integration: Trapezoidal Rule, Simpson's 1/3 Rule Simpson's 3/8 Rule.

Unit -III
Measure of Central Tendency: Preparing frequency distribution table, Mean Arithmetic, Mean Geometric, Mean Harmonic, Mean, Median and Mode.

Measure of dispersion: Range, Mean deviation, Standard deviation, co-efficient of variation, Moments, Skewness, Kurtosis.

Unit –IV

Correlation: Meaning, Bivariate Distribution, Multivariate distribution, Karl Pearson method, Rank correlation.

Regression: Meaning, Linear Regression.

References/ Textbooks:

1. B.S. Grewal, Numerical Methods in Engineering & Science: With Programs in C, C++ & MATLAB, Khanna Publisher, 2014.
2. V. Rajaraman, Computer Oriented Numerical Methods, Prentice Hall of India Private Ltd., 2009.

Note: The latest editions of the books should be followed.

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- IV
(Session 2021-22)
Course Code: BARM-4134
BCSM-4134
BECM-4134**

**COMPUTER SCIENCE
(DATA STRUCTURES)
(THEORY)**

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                    Theory: 50
                                                    Practical: 30
                                                    CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use Non–programmable/ scientific & Non–storage type calculator.

UNIT–I
Data Structures: Introduction to elementary data organization, Common Operation on Data Structures, Algorithm Complexity, Big O Notation, Time-Space Tradeoff between Algorithms.
Arrays: Array defining, representing arrays in memory, various operations on linear arrays, MultiDimensional arrays.

UNIT–II
Linked Lists: Types of Linked Lists, representing linked list in memory, advantages of using linked lists over arrays, various operations of linked lists.

Stacks: Description of stack structure, Implementation of stack, using arrays and linked lists, application of stack-converting, arithmetic expression from infix notation to polish notation and their subsequent evaluation, quicksort technique.

UNIT–III
Queues: Description of queue structure, Implementation of queue using arrays and linked lists, description or priorities of queues, deques.

Sorting and Searching: Sorting Algorithms, bubble sort, selection sort, insertion sort, quick sort, merge sort, heap sort, searching Algorithms, linear search and binary search.

UNIT-IV

Trees: Description of Tree Structure and its Terminology, Binary Trees and Binary Search Trees and their representation in Memory, Heapsort.

Graphs: Description of Graph Structure, Implement Graphs in Memory using Adjacency Matrix, Path Matrix, graph traversal techniques - DFS, BFS.

References / Textbooks:

1. Seymour Lipschutz, Data Structures with C (Schaum's Outline Series), McGraw Hill Education (2017), 1st Edition
2. Reema Thareja, Data Structures Using C, Oxford Publication (2014), 2nd Edition
3. Sahni Horowitz, Fundamentals of Data Strucetures in C (2008), 2nd Edition
4. Narasimha Karumanchi, Data Structures and Algorithms made easy, Careermonk Publications (2016), 5th Edition
5. S.K. Srivastava and Deepali Srivastava, Data Structures through C, BPB Publications (2004)
6. Yedidyah Langsam, Augestein and Tanenbaum, Data Structures using C and C++, Pearson Education India (2015), 2nd Edition

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- IV
(Session 2021-22)
Course Code: BARM-4134
BCSM-4134
BECM-4134**

**COMPUTER SCIENCE
(DATA STRUCTURES) (PRACTICAL)**

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                              Theory: 50
                                                                              Practical: 30
                                                                              CA: 20

Practical on Data Structures .

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- V
Session 2021-22
COURSE CODE: BARM-5134
BCSM-5134
BECM-5134

COMPUTER SCIENCE
(DATA BASE MANAGEMENT SYSTEM)
(THEORY)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use only Non–programmable & Non–storage type calculator

UNIT–I

DBMS: Introduction to database management system, Components of DBMS, Three Level Database System Architecture, ER. Diagrams. Data Models, Hierarchical Model, Network Model and Relational Model, Relational Databases, Relational Algebra and Calculus.

UNIT–II
Normalisation: Introduction, Normal Forms: 1NF, 2NF, 3NF, BCNF, 4NF, 5NF.

Database Security: Protection, Integrity.

Recovery: Introduction, Recovery Techniques: Log Based Recovery and Shadow Paging.

Concurrency Control: Introduction, Concurrency control with locking methods, Two Phase locking, Precedence graph, Concurrency control based on timestamp ordering, Concurrency control based on optimistic scheduling.

UNIT–III
SQL * PLUS: Introduction to Oracle , Features of Oracle .

SQL Statements: DDL, DML, DCL,TCL, constraints, Join methods & Sub query, Union,

Intersection, Built in Functions, View, and Security amongst users, Sequences, indexing object

UNIT–IV

PL/SQL: Introduction to PL/SQL. Cursors – Implicit & Explicit. Procedures, Functions & Packages, Database Triggers.

References/Textbooks:

1. C. J. Date, An Introduction to Database Systems, Pearson Education 2000.
2. F. Korth & Silverschatz, A., Database System Concepts, Tata McGraw Hill, 2010.
3. Elmasri & Navathe, Fundamentals of Database Systems, Addison-Wesley, 2011.
4. B.C.Desai, An Introduction to Database Management System, Galgotia Publication, 1991.
5. Ivan Bayross, SQL, PL/SQL - The Programming Language of Oracle, BPB Publications, 2010.
6. Gurvinder Singh, Parteek Bhatia, Simplified Approach to DBMS, Kalyani Publishers, 2016.
7. Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publications, 4th Edition.

Note: The latest editions of the books should be followed.

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- V
Session 2021-22
COURSE CODE: BARM-5134
BCSM-5134
BECM-5134**

**COMPUTER SCIENCE
(DATA BASE MANAGEMENT SYSTEM)
(PRACTICAL)**

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                    Theory: 50
                                                    Practical: 30
                                                    CA: 20

Lab on database management system.

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- VI
(Session 2021-22)
COURSE CODE: BARM-6134
BCSM-6134
BECM-6134
COMPUTER SCIENCE
(INFORMATION TECHNOLOGY)
(Theory)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use only Non–programmable & Non–storage type calculator

UNIT-I

Data and Network Communication: Communication media: Twisted pair, Coaxial, Fiber optics, Wireless (Line of Sight and Satellite), Network Advantages, Types and Topologies,

Communication using Network protocol/Network Interface card (NP/NIC), Transmission & Communication protocol/protocol (TCP/IP)

Internet: Internet basics**,** its uses and applications. System Development Process and System development Tools.

UNIT-II

Information Technology: Introduction to IT and its components, Information systems, Components of Computer based information systems. Types of Information systems- TPS, MIS, DSS, EIS.

UNIT-III

Introduction to Digital Marketing: Digital Strategy and Planning, Website marketing tools, Digital content – website, blogs, email, webinars, videos, podcasts, e-zines, PPC advertising.

Social Media and Social Bookmarking: Facebook, Twitter, Pinterest, Instagram,

Search Engine Marketing: Meaning, Working and Search Engine Optimization,

UNIT-IV

YouTube Studio: Navigating studio, Uploading videos, Edit Video settings, Analytics, Copyright and Monetization.

Blog Writing: Blog Domain, choice of CMS, Register a domain or subdomain with a website host.

References/Textbooks:

1. Peter Norton, Introduction to Computers, McGraw Hill (2017), 7th edition.
2. Patrick, G.Mckeown, Living with the Computers, Harcourt College Pub (1990) 3rd edition.
3. Hussain & Hussain, Computer: Technology, Applications & Social Implications, PHI Learning (2006)
4. Behrouz A. Forouzan, Data Communications & Networking, McGraw-Hill Education (2012), 5th edition.
5. Andrew S. Tanenbaum, Computer Network, Prentice Hall (2010), 5th edition.
6. Abraham Silberschatz, Greg Gagne, Peter B. Galvin, Operating System Concepts, Wiley Publishers (2018), 10th edition.
7. Yashavant Kanetkar, Unix Shell Programming, BPB Publications (2003), 1st edition.

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- VI
Session 2021-22
COURSE CODE: BARM-6134
BCSM-6134
BECM-6134
COMPUTER SCIENCE
(INFORMATION TECHNOLOGY)
(PRACTICAL)**

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                                 Theory: 50
                                                                          Practical: 30
                                                                                     CA: 20

Lab on Information Technology.

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER   FUNDAMENTALS AND PC SOFTWARE)
(THEORY)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I
Fundamentals of Computer: Introduction to computer, Applications of computer, Components of computers (Input unit, Output Unit, Memory Unit & CPU), type of Software, Translators (compiler, interpreter, assembler), Booting a System.

UNIT II
Input and Output Devices: Keyboards, Mouse, Joystick, Track Ball, Light Pen and Data Scanning devices (scanner, OCR, OMR, MICR, Bar Code Reader, Card Reader), Monitor,

Printers (laser printer, dot matrix printer, ink jet printer).

Memories: Primary Memory-RAM and ROM. **Secondary Memory** - Hard Disk, CD, DVD.
Introduction to Windows based operating system and Desktop icons.

UNIT III
Word Processing: Introduction to word, Parts of window of word (Title bar, menu bar, status bar, and ruler), Understanding the Ribbon, Use of Office Button and Quick Access Toolbar, Creation of new documents, opening document, insert a document into another document. Page

setup, margins, gutters, font properties, Alignment, page breaks, header & footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height, width of row/column. Editing, deleting Rows, columns in table. Adding picture, page colors and Watermarks, Borders and shading, Templates, wizards, Mail Merge.

UNIT IV

PowerPoint: Introduction to PowerPoint, Exploring menus, starting a new slide, saving presentation, moving/rearranging slides, printing slides. Applying theme to presentation, Views (slide View, slide sorter, notes view, outline view), Formatting & enhancing text formatting. Creating a graph, displaying slide show, adding multimedia. Slide transitions, applying Animation, Timing slide display, adding movies & sounds. Using a pick look Wizards to change format.

References/Textbooks:

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3. Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.
5. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science(Economics) Semester I
Session 2021-22
COURSE CODE: BARM-1124
BECM-1124

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)
(PRACTICAL)

Examination Time: (3+3) Hrs.

Practical based on PC Software - Office.

COMPUTER APPLICATIONS (VOCATIONAL)
(PROGRAMMING IN C)
(THEORY)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT-I

Data Representation, Flow Charts, Problem Analysis, Decision tables, Pseudo codes and Algorithms.

Programming Using C:
Basics of C: Introduction to C, Applications and Advantages of C, Tokens, Types of Errors
Data Types: Basic and Derived Data Types, User Defined Data Types, Declaring and initializing variables.

UNIT-II

Operators and expressions: Types of operators (Unary, Binary, Ternary), Precedence and Associativity

Data I/O Functions: Types of I/O function, Formatted & Unformatted console I/O Functions

Control Statements: Jumping, Branching and Looping–Entry controlled and exit controlled, Advantages/Disadvantages of loops, difference between for, while and do–while.

UNIT-III

Arrays: Types of Arrays, Advantages/Disadvantages of arrays. Insertion, Deletion, Searching and sorting operations on array

Strings: Introduction to Strings and String functions, array of strings.

Functions: User Defined and Library Function, Function (Prototype, Declaration, Definition), Methods of passing arguments, local and global functions, Recursion.

UNIT-IV

Storage classes: Introduction to various storage classes, scope and lifetime of a variable, Storage class specifiers (auto, register, static, extern), advantages and disadvantages.

Pointers: Introduction, Advantages/Uses of pointers, Limitations of pointers, Difference between void pointer and Null pointer, Pointer arithmetic, operators not allowed on pointers, Types of Pointer**,** Passing Pointers to function, concept of pointer to pointer.

Structure and Union: Introduction to structure and union, pointers with structure**.**

References/Textbooks:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th edition.
2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4th edition.
3. Rachhpal Singh K.S. Kahlon, Gurvinder Singh, Programming in C, Kalyani Publishers (2011).
4. Yashwant Kanetkar, Let us C, BPB Publications (2020), 17th edition.
5. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4th edition.
6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th edition.

Bachelor of Arts / Bachelor of Science(Economics) Semester II
(Session 2021-22)
COURSE CODE: BARM-2124
BECM-2124

COMPUTER APPLICATIONS (VOCATIONAL)
(PROGRAMMING IN C)
(PRACTICAL)

Examination Time: (3+3) Hrs.

Lab based on Programming in C.

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)
(THEORY)

Examination Time: (3+3) Hrs.   Max. Marks: 100

Theory: 50

Practical: 30

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Introduction to Operating System, Types of Operating systems: Multiuser, Multitasking and Multiprogramming, Functions of Operating System, Booting a System, Language Processors:

Compiler, Assembler, Interpreter, Linker and Loader.

UNIT-II
CPU Scheduling: First come First serve, Shortest Job First, Priority, Round Robin Scheduling. Memory Management : Logical address space and physical address space, schemes. File Management, I/O Device Management, Data Management and Security.

UNIT-III
Deadlocks: System Model, Deadlock characterization, Methods for handing deadlocks, Deadlocks Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Approach to Deadlock handling.

UNIT–IV
Linux: Introduction, History,**Linux Commands:** lias, cat, cd, chmod, chown, curl, df, echo, exit, find, free, whoami, grep ,cal, who, pwd etc.

References/Textbooks:

1. Avi Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Concepts, Wiley, 2013.

2. Charles Crowley, Operating Systems: A Design-Oriented Approach, Tata McGraw Hill, 2001.

3. Deitel, An Introduction to Operating Systems, Second Edition, Addison Wesley, 1990.

4. William Stallings, Operating Systems: Internals and Design Principles, Pearson Education Limited, 2014.

5. Anshuman Sharma, Fundamentals of Operating System, Lakhanpal Publishers, 2nd Edition.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science(Economics) Semester III
Session 2021-22
COURSE CODE: BARM-3124
BECM-3124

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)
(PRACTICAL)

Practical based on Operating System.

Bachelor of Arts / Bachelor of Science(Economics) Semester IV
(Session 2021-22)
COURSE CODE: BARM-4124
BECM-4124

COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)
(THEORY)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Basic Concepts: An overview of Database Management, (database, database system, why database). An architecture for a database system (levels of the architecture, mapping, data independence), DBA, Definition of CODD's Rules.

Normalization of Data: First, Second and Third Normal form, **Database Models:**
Hierarchical, Network, Relational, Introduction to Relational database systems .

UNIT II

ORACLE : Introduction to Oracle ,**Data Types:** Char, numbers, date long, raw, long raw.

DDL Commands of SQL: Create Tables, Constraints, Alter Table, Drop Table, Rename.

Data Manipulation Language: Insert Into, Update Statement, Delete Statement, Select statement (Select distinct, Select from where, Select from where order by, Select group by clause, Select Group by having clause).

Transaction Control Language: Roll back, Savepoint, Commit.

UNIT III

Built in Functions- Aggregate Functions (Sum, Avg, max, min, count), Character Functions (Lower, Upper, Length, Substr, RPAD, LPAD), Arithmetic Functions (Round, Trune, Sqrt, Mod, Abs, Sine) Date and Time Functions and Other Miscellaneous Functions (Add-months, Month-between, NVL, NVL2, decode) & Conversion Functions (to-char, to-number, to-date).

Join methods and Sub query, Union, Intersection, Minus, Views, Security amongst users.

UNIT IV

PL/SQL: Introduction to PL/SQL, Relationship between SQL & PL/SQL, Advantages, block structure, Valuable and Constant declaration, Declaration using attributes %type attribute, control statements.

References/Textbooks:

1. Silberschatz, Korth & Sudarshan, Database Systems Concepts, McGraw-Hill Inc.(2020), 7th edition.
2. C.J. Date, An Introduction of Database System, Addison-Wesley Publishing co. (2003), 8th edition.
3. Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publishers (2016), 4th edition.
4. Ivan Bayross, SQL/PL/SQL. The Programming Language of Oracle, BPB Publications(2010), 4th edition.
5. Ramez Elmasri and Shamkant Navathe, Fundamentals of Database Systems, Pearson Education (2015), 7th edition.
6. P.S. Gill, Database Management Systems, Dreamtech Press (2019), 2th edition.

Bachelor of Arts / Bachelor of Science(Economics) Semester IV
(Session 2021-22)
COURSE CODE: BARM-4124
BECM-4124
COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)
(PRACTICAL)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Practical on Relational Data Base Management System .

Bachelor of Arts / Bachelor of Science(Economics) Semester V
Session 2021-22
COURSE CODE: BARM-5124
BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)
(THEORY)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                  Theory: 50
                                                                Practical: 30
                                                                        CA: 20

Instructions for the Paper Setters:–
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT – I

Internet: Introduction, its evolution, working, IP Address, DNS and its classification, working of DNS, Internet Services, ISP, Types of internet connection, Internet Security, Advantages, Disadvantages and Uses of Internet.

Search Engines: Introduction, its working, searching using google, web directory, Meta search engines.

UNIT – II

E–Mail: Introduction, its working, E-mail protocols: SMTP, POP, IMAP, Structure of E-mail,

Operations on E-mail, Address Book, Signature, File attachment, MIME, Web based E-mail,

Spams, Advantages and limitations of E-mail

Browsers: Introduction, Features of Internet Explorer and Google Chrome.

UNIT – III

HTTP: HTTP Protocol and its structure. **WWW:** Introduction and its working **TCP/IP Protocols:** PPP, SLIP.

FTP: Introduction, its working, FTP Commands, FTP Session, Advantages and Disadvantages of FTP.

UNIT – IV

HTML and Web Designing: Introduction, Structure and creation of HTML document, Formatting Text, Lists, Font element, Advantages and Disadvantages of HTML, Hyperlinks, Images, Tables, Frames, Forms.

References/Textbooks:

1. Keith Sutherland, Understanding the Internet: A Clear Guide to Internet Technologies, Butterworth-Heinemann, 2000.

2. S. K. Bansal, Internet Technologies, APH Publishing Corporation, 2002.

3. Forouzan B., Data Communications and networking, McGraw Hill, 2007.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science(Economics) Semester V
Session 2021-22
COURSE CODE: BARM-5124
BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)
(PRACTICAL)

Examination Time: (3+3) Hrs.

Practical on Internet and Web Designing.

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)
(Theory)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Instructions for the Paper Setters:–
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Introduction to Data Processing, Need of Computers in Business.

Characteristics of Business Organization and Use of computers in various work areas of business like: Payroll System, Inventory Control, Online Reservation, Computer in Banks and Computer Application in Educational Institutions.

UNIT–II

Data Processing Methods: Batch Processing, Online Systems, Time Sharing, Real Time Systems and Distributed Processing.

File Organization: Types of Files (Master, Transaction, Work, Backup, Audit Files), File Organization (Serial, Sequential, Indexed Sequential, Direct Assess Files).

UNIT–III

Spreadsheets : Introduction, Worksheet, Data Entry, Editing, Cell Addressing Range,

Copying and Moving Cell Content, Inserting and Deleting Rows and Column, Column Formats, Printing, Creating, displaying charts, Create, manage, and format pivot tables and pivot charts. Printing the Worksheet.

UNIT–IV

Working with functions - Date and time function, Statistical function, Mathematical and Trigonometric functions, Text function, Logical functions, other computations , using data analytics tools and what if analysis- data sort, fill, query, filter etc.

References/Textbooks:

1. Murdick & Ross, Introduction to Management Information Systems, Prentice Hall (1977).

2. Muneesh Kumar, Business Information Systems, Vikas Publishing (1998), 1st edition.

3. Silberschatz, Korth & Sudarshan, Database Systems Concepts, McGraw-Hill Inc.(2020), 7th edition.

4. Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publishers (2016), 4th edition.

5. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).

6. Peter Norton, Introduction to Computers, McGraw Hill Education (2017), 7th edition.

Bachelor of Arts / Bachelor of Science(Economics) Semester VI
Session 2021-22
COURSE CODE: BARM-6124
BECM-6124

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)
(Practical)

Examination Time: (3+3) Hrs.

Practical on business data processing.

Bachelor of Commerce (Pass.) Semester – I
(Session 2021-22)
Course Code: BCRM–1127
COMPUTER FUNDAMENTALS

Examination Time: (3+3) Hours   **Max. Marks: 50**
Theory: 25
Practical: 15
CA: 10

Instructions for Paper Setter -

Eight questions of equal marks (5 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT – I

Introduction: Computer as System, Features, Computer Memory –Primary (RAM & ROM) and Secondary (Hard Disk, CD, DVD), Storage Devices (Magnetic and Optical).

Computer Applications: Data Processing, Information Processing, Commercial, Office

Automation, Industry, Healthcare, Education, Graphics and Multimedia

UNIT-II

Word Processing: Introduction to word, features, Parts of window of word (Title bar, menu bar, ribbon, office button, status bar, and ruler), creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header and footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document.

UNIT-III

Word Processing: Creating a table, entering and editing text in tables, changing format of table, height, width of row/column, adding and deleting rows/columns, adding picture and shapes, page colors and watermarks, borders, shading, templates, wizards and mail merge

Spreadsheet: Introduction to worksheet, features, creating a new workbook, manual math formulas (average, count, etc.), use "cell references" with formulas.

UNIT IV

Spreadsheet: Creation of graphs, editing it and formatting, adding/deleting/moving the text in worksheet, linking different sheets, sorting the data, filtering the data (auto and advance filters), What-if analysis, open an already existing workbook, saving workbook, printing a worksheet, closing the workbook.

References/Textbooks:

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3. Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.
5. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.
6. Peter Norton, Peter Norton's Computing Fundamentals, McGraw-Hill Technology Education, 2006.
7. R. Parameswaran, Computer Applications in Business, S Chand & Company, 2010.

Note: The latest editions of the books should be followed.

Max. Marks: 50
Practical: 40
CA: 10

Examination Time: 3 Hrs

Instructions for the Paper Setter:

 Paper will be set on the spot by the examiner

UNIT-I

Word Processing:

- Shortcuts for navigation, insertion, deletion, and selection
- Formatting fonts with bolding, bullets and numbers
- Creative use of cut, copy and paste
- Format painter
- Tables
- Graphics, Smart Art, watermarks, hyperlinks, print screen function and Word art Page numbering
- Borders and shading
- Headers/footers
- Shortcut features like AutoCorrect, quick sections, find and replace
- Page breaks, drop caps
- Spelling, grammar, thesaurus

UNIT-II

Spreadsheets:
- Navigation and keyboard shortcuts
- Text, number and date shortcuts
- Add columns, rows (Autosum, auto-calculate)
- Manual math formulas (average, count,etc.)
- Use "cell references" with formulas
- Copy formulas (fill handle)
- Cut, copy, paste spreadsheets, range, and formulas
- Delete/insert rows and columns
- AutoCorrect

- Print options (orientation, margins, gridlines, header/footer)

UNIT-III

- Create charts to illustrate your spreadsheets; revise and format charts
- Create, sort and filter lists
- Apply formatting options, including conditional formatting

Presentations:

- Slide content: planning, opening slides, sequencing
- Bullet/number slides(variations, sequencing, layout)
- Graphics, shapes(alternatives to bullets; use color to influence mood; use images to reinforce messages)
- Smart art(effective use of diagrams)

UNIT-IV

- Photos and internet photos(formatting options)
- Copy/paste shortcuts(from other programs; linking)
- Create/import org charts, graphs and tables
- Hyperlinks to others programs and the internet
- Insert media clips, movies, sounds
- Views: Slide sorter, Outline, Notes as editing and presentation tools
- Presenting: transitions, animation, hiding slides, pausing and highlighting
- Automatic presentations (narrations, timing)
- Presentation methods to connect with individuals and groups

References/Textbooks:

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3. Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.
5. Ebooks at OpenOffice.org
6. R. Gabriel Gurley, A Conceptual Guide to OpenOffice.org3, 2nd Edition.

Note: The latest editions of the books should be followed.

Bachelor of Business Administration (Semester – I)
(Session 2021-22)
COURSE CODE:BBRM-1127
COMPUTER APPLICATIONS FOR BUSINESS- I

Examination Time: 3+3 Hours   **Max. Marks: 50**
Theory:25
Practical: 15
CA:10

Instructions for Paper Setter -

Eight questions of equal marks are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT- I

Computer Fundamentals: Definition of computer, Components of a computer system, Brief history of evolution of computers and generation of computers.

Internal and External Memory Storage: RAM, ROM, PROM, EPROM. Commonly used

Input / Output/Memory storage devices: Punched Card, VDU, CRT. Difference between Hardware & Software. Types of software system. Software & Application software,

Interpreter.

UNIT-II

Operating System: Definition, Types of operating on the Basis of processing. Introduction to various types of operating system such as windows & DOS Overview and Anatomy of windows, Working with files and folder in windows. Basic Commands of Internal & External commands in DOS.

UNIT-III

Word Processor: Overview, Creating, Saving, Opening, Importing, Exporting and Inserting files. Formatting pages, paragraphs and sections. Indents and outdates. Creating lists and numbering .Heading Styles, Fonts and size editing, positioning& viewing text. Finding and replacing text, inserting page breaks, page numbers, book marks, symbols & dates. Using tabs and tables Header, Footer & Printings.

UNIT-IV

Spreadsheet: Worksheet overview. Entering information. Worksheet. Opening and saving workbook. Formatting number and texts. Protecting cells. Producing Charges and printing operations graphs.

Presentation: Presentation Basics Menus and Toolbars, Opening and saving and existing presentation creating and saving a presentation using auto content wizard. Design Template Blank Presentation. The slides sorter view. Insert slides from another presentation. Inserting pictures and graphics. Slide show, printing, slides.

References / Textbooks:

1. Peter Norton, Introduction to Computers, Tata McGraw-Hill, 2006.
2. Sanjay Sexana, A First Course in Computers, Vikas Publishing House, New Delhi, 2015.
3. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.
4. Dr. S.S Srivastava., MS-Office, Firewal Media, New Delhi, 2008.
5. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.

Note: The latest editions of the books should be followed.

Bachelor of Science (Fashion Designing) Semester–I
(Session 2021-22)
COURSE CODE: BFDM-1126
BASICS OF COMPUTER

Examination Time: 3+3Hrs   **Max. Marks: 100**
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -
Eight questions of equal marks (10 marks each) are to set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Introduction to Computer, Data Processing, Concept of data and information,

UNIT II

Classification of computer.
Computer Hardware-Central Processing Unit, Main Memory, Secondary Memory I/O devices

UNIT III

General concept of Word Processor: Word Processing, Formatting, editing
Word Processing: Spell- grammar check, Mail Merge, Printing and saving.

UNIT IV

Computer applications in various fields of fashion Industry.

References/Textbooks:

1. Anshuman Sharma, Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Rachhpal Singh and Gurvinder Singh, PC Software, Kalyani Publisher, 2009.
3. Peter Norton, Peter Norton's Computing Fundamentals, McGraw-Hill Technology Education, 2006.

Note: The latest editions of the books should be followed.

Bachelor of Science (Honours) Physics Semester III
Session 2021-22
Course Code: BOPM-3135
PYTHON PROGRAMMING

Examination Time: (3+3) Hours

Max. Marks: 50
Theory: 25
Practical: 15
CA: 10

Instructions for the Paper Setters:

Eight questions of equal marks (05 marks each), (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

UNIT I

Introduction to python and Setting up the Python development Environment, Basic syntax, interactive shell, editing, saving, and running a script, Concept of data types, Declaring and using Numeric data types: int, float, complex Lists and Tuples and their basic operations, Python console Input / Output. Arithmetic operators and expressions, Conditions, Comparison operators, Logical Operators, Is and In operators.

UNIT II

String Handling, Unicode strings, Strings Manipulation: - compare strings, concatenation of strings, slicing strings in python, converting strings to numbers and vice versa. Dictionaries Control statements: if-else, Nested If-Else, Loops (for, while) Loop manipulation using pass, continue, break and else.

Matrix operations using NumPy array (Multiplication. Addition, matrix multiplication, inverse, determinant, adjoint, Eigenvalues, etc).

UNIT III

Built in function and modules in python, user defined functions, passing parameters, arguments and return values; formal vs actual arguments, Lamda function in python, Recursion, organizing python codes using functions, modules and external packages.

Case study of Projectile Motion.

UNIT IV

SciPy: Integration, differentiation and interpolation.

Files: manipulating files and directories, OS and Sys modules; text files: reading/writing text and numbers from/to a file; creating and reading a formatted file (csv or tab separated) understanding read functions, read(), readline() and readlines() Understanding write functions, write() and writelines() Manipulating file pointer using seek. Introduction to graphics. **Plotting graphs and objects.**

References / Textbooks:

1. Mark Lutz, Learning Python, O'Reilly Media, 2013.
2. David Beazley, Python cookbook, O'Reilly Media, 2013.
3. David Beazley, Python Essential Reference, Addison-Wesley Professional, 2009.
4. John Zelle, Python programming: An Introduction to Computer Science, Franklin, Beedle & Associates Inc, 2004.
5. Alex Mortelli, Python in a Nutshell, O'Reilly Media, 2006.

Note: The latest editions of the books should be followed.

Examination Time: (3 + 3) Hrs

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -

- Eight questions of equal marks (10 marks each) are to be set, two in each of the four Sections (A-D).
- Questions of Sections A-D should be set from Units I-IV of the syllabus respectively.
- Questions may be subdivided into parts (not exceeding four).
- Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT -I

Introduction to computer and its characteristic:
History of computers, Generations of Computers, Types of Computers, input devices, ouput devices, memory devices, software and its types, working with windows, features, desktop, using context menu, creating shortcut, working with dialog box, arranging windows, setting properties of desktop, transfer from CD, DVD. Pen Drive to Hard disk and vice versa, coping files.

Definition of Virus, Malware, Spyware and removal.

UNIT -II
Word Processing: Opening document, editing, formatting, use of fonts, styles and colors, exiting document. Inserting pictures from a file, inserting a Table or a chart. Copying from one document to other, using headers and footers on a document.

UNIT- III
Presentation: Presentation and its features, components, viewing a slide show using blank presentation adding text, saving, closing, opening the presentation, viewing presentation, normal view, Outline view, slide sorter view, slide show, creating a wizard using presentation,

editing presentations, adding new slide, changing the new slides, editing text type, deleting the text object, interesting text boxes, formatting text, modifying slides, working with slide outlines, moving objects , copying objects, searching text, replacing text, spell check, using clip art, word Art, auto shapes.

UNIT-IV

Internet and E-mail: What Internet Provides, Internet terms, Internet requirements, getting started Internet, Surfing Net, moving about the Web, E-Mail, its features, creating and E-Mail message, Reading Mail, replying mail, draft message, sending mail. Phishing and SPAM mail.

References / Textbooks:

1. Anshuman Sharma, Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Rachhpal Singh & Gurvinder Singh, Windows based computer courses, Kalyani Publisher, 2014.
3. Peter Norton, Introduction to Computers, Tata McGraw-Hill, 2006.
4. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.
5. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.

Note: The latest editions of the books should be followed.

Bachelor of Science (Home Science) Semester-I
Session 2021-22
COURSE CODE: BHSM - 1127
COMPUTER BASICS (PRACTICAL)

Examination Time: (3 + 3) Hrs

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Practical on Computer Basics.

Bachelor of Science (Home Science) Semester-II
(Session 2021-22)
COURSE CODE: BHSM - 2127
COMPUTER APPLICATIONS FOR HOME SCIENTISTS
(Theory)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                                          Theory: 50
                                                                                          Practical: 30
                                                                                          CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT-I
Spreadsheet Software: Workbook and worksheet, entering data, editing cell contents, Inserting and deleting rows, column, using auto-fill, creating list, formatting data, using formula
Internet: Introduction to internet, searching information on internet.

UNIT-II
WWW: Introduction, working of WWW, Web browsing (opening, viewing, saving and printing a web page and bookmark).

E-Commerce: Basics, Architecture, Types, Applications.

UNIT-III
Payment gateway: Popular payment methods (Net-banking, m-Banking, UPI, Debit/Credit Card, Mobile Wallets)

Multimedia & its Applications: Introduction to Multimedia and its usage, record sound using devices, using scanner, Web Camera.

UNIT IV
YouTube Studio: Navigating studio, Uploading videos, Edit Video settings, Analytics, Copyright and Monetization.

Blog Writing: Blog Domain, choice of CMS, Register a domain or subdomain with a website host.

Social Media Marketing: Social Media, Importance of Social Media, SMO Strategy for Business, Business Profile Creation, Viral Marketing, Application of Facebook and Twitter for social media marketing.

References/Textbooks:

1. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications (2017).
2. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).
3. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers (2016), 5th ed.
4. Ramesh Bangia, Introduction To Multimedia, Laxmi Publications Pvt. Ltd.(2015).
5. Laudon, E-Commerce, Pearson Education India (2016), 10th ed.
6. https://www.tutorialspoint.com/social_media_marketing/   7. https://blog.hubspot.com/marketing/how-to-start-a-blog

Bachelor of Science (Home Science) Semester-II
(Session 2021-22)
COURSE CODE: BHSM - 2127
COMPUTER APPLICATIONS FOR HOME SCIENTISTS
(Practical)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                    Theory: 50
                                                                    Practical: 30
                                                                    CA: 20

Note: Paper will be set on the spot by the examiner.

1) Microsoft Excel
2) Searching on Internet
3) Multimedia Usage
4) YouTube and Blog

Bachelor of Science (Honours) Mathematics Semester–II
Session 2021-22
Course Code: BOMM-2137
Computer Fundamentals and Introduction to C Programming Language

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                                        Theory: 50
                                                                       Practical: 30
                                                                            CA: 20

Instructions for the Paper Setters:
Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

UNIT-I

Introduction : Early computing devices, diverse uses of computers, block diagram, use of CPU and I/O devices, software and hardware, application software and system software, primary and secondary storage devices, Flowcharts and algorithms.

UNIT-II

Introduction to 'C' language: Tokens, Identifiers, Keywords, constants and literals, Data types. Operators: arithmetic, relational and logical, precedence and order of evaluation

UNIT-III

Control Statements: Decision control, loop control and case control. Functions and storage classes.

UNIT-IV

Arrays: initializing an array. one dimensional arrays: array manipulation; searching, insertion, deletion of an element from an array; finding the largest/smallest element in array; two dimensional arrays, addition/multiplication of two matrices, program to transpose a square matrix; null terminated strings as array of characters.

References / Textbooks:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th edition.

2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4th edition.
3. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).
4. Yashwant Kanetkar, Let us C, BPB Publications (2020), 17th edition.
5. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4th edition.
6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th edition.

Examination Time: (3+3) Hours   **Max. Marks: 100**
                                                                  Theory: 50
                                                                  Practical: 30
                                                                  CA: 20

Instructions for the Paper Setters:

Eight questions of equal marks (10 marks each), (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

UNIT I

Introduction to python and Setting up the Python development Environment, Basic syntax, interactive shell, editing, saving, and running a script, Concept of data types, Declaring and using Numeric data types: int, float, complex Lists and Tuples and their basic operations, Python console Input / Output. Arithmetic operators and expressions, Conditions, Comparison operators, Logical Operators, Is and In operators.

UNIT II

Calculation of area, surface area and volume of geometrical objects. String Handling, Unicode strings, Strings Manipulation: - compare strings, concatenation of strings, slicing strings in python, converting strings to numbers and vice versa. Dictionaries Control statements: if-else, Nested If-Else, Loops (for, while) Loop manipulation using pass, continue, break and else.

UNIT III

Built in function and modules in python, user defined functions, passing parameters, arguments and return values; formal vs actual arguments, Lamda function in python, Recursion, organizing python codes using functions, modules and external packages.

Math Module: Constants, Arithmetic functions, Power functions, Logarithmic functions, Trigonometric and Angular functions.

UNIT IV

Matrix operations using NumPy array (Multiplication. Addition, matrix multiplication, inverse, determinant, adjoint, Eigenvalues, etc).
Files: manipulating files and directories, OS and Sys modules; creating and reading a geometric file (csv or tab separated) understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines(), Manipulating file pointer using seek. Introduction to graphic. **Plotting graphs and objects.**

References / Textbooks:

1. Mark Lutz, Learning Python, O'Reilly Media, 2013.
2. David Beazley, Python cookbook, O'Reilly Media, 2013.
3. David Beazley, Python Essential Reference, Addison-Wesley Professional, 2009.
4. John Zelle, Python programming: An Introduction to Computer Science, Franklin, Beedle & Associates Inc, 2004.
5. Alex Mortelli, Python in a Nutshell, O'Reilly Media, 2006.

Note: The latest editions of the books should be followed.

Bachelor of Science (Honours) Mathematics Semester-IV
Session: 2021-22
COURSE CODE: BOMM-4135
FOUNDATION OF STATISTICAL COMPUTING

Examination Time: (3+3) Hrs.

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -
Eight questions of equal marks (10 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

UNIT - I

Data Statistics: Sampling, Cumulative statistics, Statistics for Data frames, matrix objects and lists. Introduction to R, Help functions in R, Vectors, Common Vector Operations, Using all and any function, subletting of vector. Creating matrices, Matrix operations, Applying Functions to Matrix Rows and Columns, Adding and deleting rows and columns, lists, Creating lists, general list operations, Accessing list components and values, applying functions to lists, recursive lists

UNIT - II

Creating Data Frames – Matrix-like operations in frames , Merging Data Frames, Applying functions to Data frames, Factors and Tables , factors and levels , Common functions used with factors , string operations

UNIT - III

Input/ Ouput: scan() , readline() Function, Printing to the Screen Reading and writing CSV and text file. Control statements: Loops, Looping Over Nonvector, Sets, if-else , writing user defined function, scope of the variable, R script file

UNIT - IV

Graphics in R: Graph Syntax ((title, xlabel, ylabel, pch, lty, col.), Simple graphics (Bar, Multiple Bar, Histogram, Pie, Box-Plot, Scatter plot, qqplot), Low-level and High-Level plot functions, par() command to generate multiple plots.

Note:

Practical: Based on simple mathematical problems and based on syllabus of Statistical Methods for descriptive Statistics.

References / Textbooks:

1. Andrie de Vries and Joris Meys, R Programming for Dummies, Wiley (2016), 2nd Edition.
2. Sandip Rakshit, R Programming for Beginners, McGraw Hill Education (2017), 1st Edition.
3. Sandip Rakhsit, Statistics with R Programming, McGraw Hill Education (2018), 1st Edition.
4. Garrett Grolemund, Hands on Programming with R, O'Reilly (2014), 1st Edition
5. Mark Gardener, Beginning R: The Statistical Programming Language, Wiley (2013)
6. Tilman M. Davies, The Book of R: A first Course in Programming and Statistics, No Strach Press (2016), 1st Edition

Bachelor of Science (Honours) Agriculture Semester-IV
(Session: 2021-22)
Course Code: BACM-4128
AGRI-INFORMATICS
(THEORY)

Examination Time: (3+3) Hrs.

Max. Marks: 50
Theory: 25
Practical: 15
CA: 10

Instructions for Paper Setter - Eight questions of equal marks (05 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT – I

Introduction to Computers, Operating Systems, definition and types, Applications of MS-Office for document creation & Editing, Data presentation, interpretation and graph creation, statistical analysis, mathematical expressions, Database, concepts and types, uses of DBMS in Agriculture.

UNIT – II

World Wide Web (WWW): Concepts and components. Introduction to computer programming languages, concepts and standard input/output operations, e-Agriculture, concepts and applications, Use of ICT in Agriculture. Computer Models for understanding plant processes.

UNIT – III

IT application for computation of water and nutrient requirement of crops, Computer-controlled devices (automated systems) for Agri-input management, Smartphone Apps in Agriculture for farm advises, market price, postharvest management etc, Geospatial technology for generating valuable agri-information.

UNIT – IV

Decision support systems, concepts, components and applications in Agriculture.
Agriculture Expert System, Soil Information Systems etc for supporting Farm decisions. Preparation of contingent crop-planning using IT tools.

References/Textbooks:

1. G. Vanitha, Agro-Informatics Book, New India Publishing Agency (2011).
2. http://www.agrimoon.com/
3. http://www.agriinfo.in/ eagri.org
4. http://www.agriglance.com/
5. http://agritech.tnau.ac.in/

Bachelor of Science (Honours) Agriculture Semester-IV
(Session: 2021-22)
Course Code: BACM-4128
AGRI-INFORMATICS
(PRACTICAL)

Examination Time: (3+3) Hrs.

Max. Marks: 50
Theory: 25
Practical: 15
CA: 10

Instructions for Practical Examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same should be submitted for the record to COE Office, Kanya Maha Vidyalya, Jalandhar.

LIST OF EXPERIMENTS

1. Study of Computer Components, accessories, practice of important DOS Commands.
2. Introduction of different operating systems such as windows, Unix/ Linux, Creating, Files & Folders, File Management.
3. Use of MS-WORD and MS Power-point for creating, editing and presenting a scientific Document.
4. Use of MS-EXCEL - Creating a spreadsheet, use of statistical tools, writing expressions, creating graphs, analysis of scientific data.
5. Use of MS-ACCESS: Creating Database, preparing queries and reports, demonstration of Agri-information system.
6. Introduction to World Wide Web (WWW). Introduction of programming languages.
7. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/CropSyst/ Wofost; Computation of water and nutrient requirements of crop using CSM and IT tools.
8. Hands on Decision Support System.
9. Preparation of contingent crop planning.

References/Textbooks:

1. G. Vanitha, Agro-Informatics Book, New India Publishing Agency (2011).
2. http://www.agrimoon.com/
3. http://www.agriinfo.in/ eagri.org
4. http://www.agriglance.com/
5. http://agritech.tnau.ac.in/

MASTER OF COMMERCE SEMESTER- IV
(Session 2021-22)
COURSE CODE: MCML - 4122
E-COMMERCE

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                              Theory: 80
                                                                              CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (16 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

UNIT-I

Introduction: Introduction to E Commerce and Definition, E-Commerce based activities, Goals of E- Commerce, Functions, Advantages and disadvantages of E-Commerce, Scope of E- Commerce, Framework of E-Commerce, Electronic Commerce and Electronic Business.

Steps to open online business store.

UNIT-II

Electronic Business models: B2B, B2C, C2C, Websites as market place. Pure online vs. brick and click business.

Electronic Payment systems: Payment Gateways; Different methods of E-payments: Debit Cards, Credit Cards, Paytm, UPI, Google Pay.

UNIT-III

Security and Legal Aspects of E-Commerce: Threats in E-Commerce, Security of Clients and Service-Provider; Cyber Laws – Relevant provisions of Information Technology Act 2000, offences. Secure electronic records and digital signatures.

UNIT-IV

Business process Re-engineering, Methodology, Planning methods for change. Case studies of E-Banking, E-Governance, Supply chain management, e-Retailing.

References/Textbooks:

1. Laudon, E-Commerce, Pearson Education India (2016), 10th edition.

2. David Whiteley, E - Commerce: Strategy, Technologies and Applications, McGraw Hill Education (2017).

3. K.K. Bajaj, Debjani Nag, E-Commerce: The Cutting Edge of Business, McGraw Hill Education (2017), 2nd edition.

4. Nidhi Dhawan, A Handbook of E-commerce, Sun India Publications (2017).

5. Janice Reynolds, The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business, CRC Press (2004), 2nd edition.

6. Syamales Maiti, Sweety Sadhukhan, E-commerce and business communication, McGraw-Hill (2019), 1st edition.

Examination Time: (3+3) Hours

Max. Marks: 75
Theory: 40
Practical: 20
CA: 15

Note: The students are allowed to use Non-Programmable Calculator.

Instructions for Paper Setter -

Eight questions of equal marks (8 marks each) are to set, two in each of the four sections (AD). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

1. Computer Programming in C language (30 Hrs.)

UNIT-I

Principles of programming, algorithms and flowcharts.

Elementary programming, a typical C program, print function.

Introduction of declarations, assignments and variables: concept of an integer, concept of a variable, rules for naming variables, assignment statement, arithmetic operators.

Integer arithmetic expressions, truncation effects, relative priority of arithmetic operators, use of parenthesis, modulus operator.

UNIT-II

Floating point numbers, scientific notation, converting integers to floating point and vice versa, coercion and cast operator, type char.

Decision making in C, scanf function, relational operators, logical operators, if statement, if else statement, nesting of if statement.

UNIT-III

The while loop, do while loop, for loop, nesting of for loop.

Type char and ASCII code, character strings and how to print them, octal and hexadecimal notation.

User defined functions, returning value from a function, functions with more than one parameters.

UNIT-IV

Arrays, declaring an array, initializing an array, break statement, strings and character arrays, sorting an array, finding maximum and minimum in an array, multidimensional arrays. Input and output.

2. Computer programs in Chemistry (15Hrs.)

(these are to be done in the practical class)

Development of small computer codes involving simple formulae in chemistry:

UNIT - I
1. Calculation of mean, median, mode.

2. Solution of a quadratic equation.

3. Calculation of linear regression.

4. Calculation of curve linear regression.

UNIT - II
5. Calculation of Bohr orbit from de Broglie Lambda for electron.

6. Calculation of wave number and frequency from value of wavelength.

7. Calculation of van der Waalsradii.

8. Radioactive decay.

9. Rate constant of a 1st order reaction, 2nd order reaction.

10. Determination

11. Calculation of lattice energy using Born Land e equation.

UNIT - III
12. Addition, multiplication and solution of inverse of 3 X 3 matrix.

13. Calculation of average molecular weight of a polymer containing n1 molecules of molecular weight m1, n2 molecules of molecular weight M2 and soon.

14. Program for calculation of molecular weight of organic compound containing C, H, N, O and S.

15. Calculation of reduced mass of diatomic molecule.

16. Calculate the RMS and most probable velocity of a gas.

UNIT - IV

17. Calculate the ionic mobility from ionic conduct ancevalues.

18. Determine the thermodynamic parameters for isothermal expansion of monoatomic ideal gas.

19. Calculation of value of g- factor from value of J and S.

20. Calculate the bond length and bond angles using crystal structure data.

References / Textbooks:

1. K.V. Raman, Computers in Chemistry, Tata McGraw Hill, 1993.

2. Henry Mullish, Herbert L. Cooper, The Spirit of C: An Introduction to Modern Programming, Jaico Publications, 1987.

3. Anshuman Sharma, Learn Programming in C, Lakhanpal Publishers, 7th Edition.

4. E Balagurusamy, Programming in ANSI C, Tata McGraw-Hill, 2002.

5. Yashvant Kanetkar, Let Us C, BPB Publications, 2016.

6. Byron Gottfried, Schaum's Outline Programming with C, McGraw Hill, 1996.

Note: The latest editions of the books should be followed.

Master of Science (Zoology) Semester–I
Session 2021-22
COURSE CODE: MZOM-1134
COMPUTER PROGRAMMING AND DATA PROCESSING

Examination Time: 3+3 Hours

Max. Marks: 50
Theory: 25
Practical: 15
CA: 10

Instructions for Paper Setter -

Eight questions of equal marks (5 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT - I

Introduction to Computer capabilities, Classifications and generations.

Computer architecture, organization, its components, Introduction to hardware and software concepts, operating systems, peripherals, I/O devices, Limitations of computer.

UNIT - II Basic Features and usage of:

Word Processing Software: Creating, Editing, Formatting and Printing document

Spreadsheet Software: Creating, Editing, Formatting and Printing a sheet

Presentation Software: Creating, Editing, Formatting and Printing a presentation

UNIT -III

Introduction to C Programming language.

Program structure, elements, character set, constants, variables, data types, identifiers, operators and expressions.

I/O Statements: printf and scanf statement.

Control statements: if, if else, else if ladder, nesting, switch, Looping statements: do while, while, for

Arrays: Basic usage, Declaration, Initialization and Types.

References / Textbooks:

1. Anshuman Sharma, Learn Programming in C, Lakhanpal Publishers, 7th Edition.

2. E Balagurusamy, Programming in ANSI C, Tata McGraw-Hill, 2002.

3. Yashvant Kanetkar, Let Us C, BPB Publications, 2016.

4. Gurwinder Singh, Rachhpal Singh, Fundamentals of Computer and PC Software, Kalyani Publishers, 2015.

5. Anshuman Sharma, Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.

6. Byron Gottfried, Schaum's Outline Programming with C, McGraw Hill, 1996.

Note: The latest editions of the books should be followed.

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Fundamentals of Computer: Introduction to computer, Applications of computer, Input and Output devices, Memory – Primary and Secondary.

Latest trends and Technologies in IT: Digital Camera, Smart finger: Distance measuring tool, Nipper, Stylus, Tiny cube speaker, Airpods, Mobile as a computing device, Payment gateway, Payment methods: Net-banking, m-Banking, UPI, Debit/Credit Card, Mobile Wallets.

UNIT II

Word Processing: Introduction to word processing & its features, parts of window of word processing (Title bar, menu bar, status bar, and ruler), understanding the ribbon, use of office button and quick access toolbar, creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, alignment, page breaks, header & footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document. Creating a table, entering and editing text in tables, changing format of table, height and width of row/column editing, adding and deleting rows/columns. Adding picture, page colors and watermarks, borders, shading, drawing objects.

UNIT –III

Spreadsheet: Introduction to worksheet/spreadsheet, features, creating a new workbook, different functions on different data in excel, creation of chart, creation of worksheet, adding, deleting, moving the text in worksheet, linking, sorting the data, querying the data, filtering the

data (auto and advance filters), open an already existing workbook, saving workbook, printing a worksheet, closing the workbook & exiting.

UNIT -IV

SPSS: Introduction, Data editor Window, Syntax, Output basics, If command, Filter command, Entering and modifying data, Creating a chart, using interactive chart function, difference between excel and SPSS.

References/Textbooks:

1. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications (2017).
2. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).
3. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers (2016), 5th ed..
4. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th ed.
5. Yashwant Kanetkar, Let us C, BPB Publications (2020), 17th ed.
6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th ed.
7. Lokesh Jasrai, Data Analysis using SPSS, SAGE Publications Pvt. Ltd. (2020), 1st Edition