SETH JAI PARKASH MUKAND LAL INSTITUTE OF ENGINEERING & TECHNOLOGY, RADAUR

Academic Calendar

Session (2020-2023)

Second Semester

Name. . . . . .
Roll No. . . . . .

Department of Computer Science & Applications

(BCA-II SEM)

EXAMINATION SCHEME FOR BACHELOR OF COMPUTER APPLICATIONS (BCA)

(SECOND-SEMESTER PROGRAMME)

Semester – II					
Paper No.	**Title of the Paper**	**Duration Of Exam**	**Maximum Marks**		**Total**
			Theory	**Sessional***	
BCA-121	Advanced Programming in C	3 Hours	80	20	100
BCA-122	Logical Organization of Computers – II	3 Hours	80	20	100
BCA-123	Mathematical Foundations-II	3 Hours	80	20	100
BCA-124	Office Automation Tools	3 Hours	80	20	100
BCA-125	Structured System Analysis and Design	3 Hours	80	20	100
BCA-126	Personality Development	3 Hours	80	20	100
BCA-131	Software Laboratory – I (Based on BCA-124)	3 Hours			100
BCA-132	Seminar Software Laboratory – II (Based on BCA-121)	3 Hours			100
	Seminar				20
				Total	**820**

BCA-121 Advanced Programming in C

Maximum Marks: 100 **External: 80**
Minimum Pass Marks: 35 **Internal: 20**
Time: 3hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Strings in C: Introduction, Declaration and initialization of string, String I/O, Array of strings, String manipulation functions: String length, copy, compare, concatenate, search for a substring.
Structure and Union: Introduction, Features of structures, Declaration and initialization of structures, Structure within structure, Array of structures, Structure and functions. Union: Introduction, Union of structures. Typedef, Enumerations.

UNIT – II

Pointers: Introduction, Pointer variables, Pointer operators, Pointer assignment, Pointer conversions, Pointer arithmetic, Pointer comparison, Pointers and arrays, Pointers and functions, Pointers and strings, Pointer to pointer, dynamic allocation using pointers.

UNIT – III

Files: Introduction, File types, File operations, File I/O, Structure Read and write in a file, Errors in file handling, Random-access I/O in files.

UNIT – IV

Preprocessor: Introduction, #define, macros, macro versus functions, #include, Conditional compilation directives, undefining a macro. Command line arguments: defining and using command line arguments.

TEXT BOOKS

1. Yashwant Kanetker, “Let us C”, BPB publications.
2. Balagurusamy, E., “Programming in ANSI C”, Tata McGraw-Hill

REFERENCE BOOKS

1. Jeri R. Hanly & Elliot P. Koffman, “Problem Solving and Program Design in C”, Addison Wesley.
2. Gottfried, Byron S., “Programming with C”, Tata McGraw-Hill
3. Behrouz A. Forouzan & Richard F. Gilberg, “Computer Science: A structured programming approach using C”, Cengage Learning
4. Ashok N. Kamthane, “Programming with ANSI and Turbo C”, Pearson Education.
5. Herbert Schildt, “The Complete Reference: C”, Tata-McGraw-Hill.

Lecture Plan
BCA-121

Week	Theory	
	Lecture Day	**Topic (including assignment/test)**
1st	Programming fundamentals	Teaching
	Revision of Data types, operators and functions	Teaching
	Introduction to Strings in C, Declaration and initialization of string	Teaching
	Array of strings	Teaching
2nd	String manipulation functions: String length, copy	Teaching
	String manipulation functions compare, concatenate	Teaching
	Two Dimentional array of characters	Teaching
	Search for a substring.	Teaching
3rd	Introduction to Structure and Union	Teaching/Assignment
	Features of structures	Teaching
	Declaration and initialization of structures, How structure elements are stored	Teaching
	Structure within structure	Teaching/Quiz
4th	Array of structures	Teaching
	Structure and functions.	Teaching
	Introduction and application of Union	Teaching
	Union vs structures	Teaching
5th	Typedef, Enumerations	Teaching
	Revision	Teaching
	Introduction to Pointers, Advantages	Teaching
	Pointer variables	Teaching
6th	Operations on pointer variables	Teaching/Assignment
	Pointer conversions and arithmetic	Teaching
	Pointers and arrays	Teaching/Quiz
	Pointers and arrays	Teaching
7th	Pointers and functions	Teaching
	Pointers and functions	Teaching
	Pointers and strings	Teaching
	Pointer to pointer	Teaching
8th	Dynamic allocation using pointers	Teaching/Assignment
	Dynamic allocation using pointers	Teaching
	Revision	Teaching
	Typecasting	Teaching
9th	Introduction to File Handling in C	Teaching
	File types and operations	Teaching
	File I/O	Teaching
	File I/O	Teaching
10th	Structure Read and write in a file	Teaching
	Errors in file handling	Teaching
	Random-access I/O in files.	Teaching/Quiz
	Random-access I/O in files.	Teaching
11th	Revision	Teaching
	Introduction to Preprocessor , #define	Teaching/Assignment
	Macros Expansion, Macros with arguments	Teaching
	macro versus functions, #include,	Teaching
12th	Conditional compilation directives	Teaching
	Undefining a macro	Teaching
	Revision	Teaching
	Command line arguments: defining	Teaching/Quiz
13th	Using command line arguments.	Teaching

Tutorial sheet-1

1. What is string? Write your own function to count the length of a string just like strlen library function.
2. What is a structure? Explain the components of a structure.
3. Differentiate between array and structure.
4. What is the difference between structure and union.
5. Write a c program to read the following information of 100 students. Student name, student roll number, student marks (ourt of 100)
6. Explain the following string handling functions with example
   a) strcpy()
   b) strcat()
   c) strcmp()
   d) strupr()

Tutorial sheet-2

1. What is a pointer? Mention the advantages of pointers.
2. Distinguish between the address operator and the dereferencing operator.
3. How do you declare a pointer variable? Explain with example.
4. What do you understand by pointer initialization? Explain with examples.
5. Can you pass pointers to functions? If yes, explain with a suitable example.
6. Write a c program to find the desired element in an array of N elements. Use pointer for searching the element.

Tutorial sheet-3

1. Write a c program in use all functions related to file management.
2. Write down the various operations performed on file.
3. Write a c program to calculate number of characters, words, blank spaces, new lines in a file.
4. Write a program in C to compute the uppercase letters in a text file.

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Tutorial sheet-4

1. Explain different types of preprocessor directives.
2. What is the function of c preprocessor?
3. Differentiate between a macro and a variable name.
4. Distinguish between
   a) #define and #include
   b) #include<filename> and #include “filename”
   c) #ifdef and #ifndef
   d) Macro call and function call

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Printed Pages : 2

1926

BCA / M-19

ADVANCED PROGRAMMING IN C

Paper–BCA-121

Time allowed : 3 hours] *[Maximum marks : 80*

Note: *Attempt **five** questions is all selecting **one** from each unit. **Question No. 1 is compulsory.***

1. (a) What is Union in C? Explain with example.

(b) What is a pointer? What is its usage in C?

(c) What are fopen() and fclose() in C?

(d) What are Macros? What are its advantages and disadvantages? 4×4

Unit–I

2. Explain standard Library functions to handle strings in C with examples. 16

3. (a) How are structure passing and returning implemented in C? 6

(b) What is enumeration? What is its use? What is difference between "typedefenum" and "enum" in C? 10

Unit–II

4. (a) Differentiate between pointer to an array and array of pointers. Explain.

(b) Write a program in C to count vowels and consonants in string using pointers. 8×2

[Turn over

5. What do you mean by Static and Dynamic memory allocation in C? Write a program in C to declare memory for an integer variable both statically and dynamically. 16

Unit–III

6. What are different file opening modes in C? Write a program in C that merges the contents of two files and write results to a new file. 8×2

7. What is Console Input Output in C? How it is different from File Input/Output? Explain various Console Input/Output functions. 16

Unit–IV

8. Write short noes on:

   (a) Macro Expansion

   (b) File Inclusion 8×2

9. What is Conditional Compilation in C? How does it help a programmer? Write a sample Program for Conditional Compilation to print system current date and time. 16

BCA-122 Logical Organization of Computers-II

Maximum Marks: 100 **External: 80**
Minimum Pass Marks: 35 **Internal: 20**
Time: 3hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT - I

Sequential Logic: Characteristics, Flip-Flops, Clocked RS, D type, JK, T type and Master- Slave flip-flops. State table, State diagram. Flip-flop excitation tables

UNIT - II

Sequential Circuits: Designing registers – Serial Input Serial Output (SISO), Serial Input Parallel Output (SIPO), Parallel Input Serial Output (PISO), Parallel Input Parallel Output (PIPO) and shift registers. Designing counters – Asynchronous and Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters

UNIT - III

Memory & I/O Devices: Memory Parameters, Semiconductor RAM, ROM, Magnetic and Optical Storage devices, Flash memory, I/O Devices and their controllers.

UNIT - IV

Instruction Design & I/O Organization: Machine instruction, Instruction set selection, Instruction cycle, Instruction Format and Addressing Modes. I/O Interface, Interrupt structure, Program-controlled, Interrupt-controlled & DMA transfer, I/O Channels, IOP.

TEXT BOOKS

1. M. Morris Mano,Digital Logic and Computer Design, Prentice Hall of India Pvt. Ltd.
2. V. Rajaraman, T. Radhakrishnan, An Introduction to Digital Computer Design , Prentice Hall of India Pvt. Ltd.

REFERENCE BOOKS

1. Andrew S. Tanenbaum, Structured Computer Organization , Prentice Hall of India Pvt. Ltd.
2. Nicholas Carter, Schaum‟s Outlines Computer Architecture, TataMcGraw-Hill.

Lecture Plan

BCA-122

Week	Theory	
	Lecture Day	**Topic (including assignment/test)**
1st	Revision:- K-Map, Combinational Circuits	Teaching
	Sequential Logic: Introduction, Characteristics	Teaching
	Flip-Flops, latches	Teaching
	Clocked ,Types of Flip- Flops	Teaching
2nd	S-R flip flops and related problem	Teaching
	JK Flip flops and drawback	Teaching
	Master- Slave JK flip-flop	Teaching
	Excitation Tables	Teaching
3rd	State table, State diagram	Teaching/Assignment
	Registers, Designing of registers	Teaching
	Types of Registers: SISO, SIPO	Teaching
	PISO, PIPO	Teaching/Quiz
4th	Shift Registers	Teaching
	Introduction to Counters	Teaching
	Definition & Types of counters	Teaching
	Synchronous Counters	Teaching
5th	Designing Modulo - N counters	Teaching
	Asynchronous Counters	Teaching
	Designing Up Counters	Teaching
	Designing Down counters	Teaching
6th	Designing binary counters	Teaching/Assignment
	Memory Introduction	Teaching
	Input/output devices Introduction	Teaching
	Flash Memory	Teaching
7th	Memory Parameters	Teaching
	Semiconductor Memory, RAM , ROM	Teaching
	Magnetic Storage Devices	Teaching
	Optical Storage devices	Teaching
	Flash Memory	Teaching/Assignment
8th	I/O Devices & their Controllers	Teaching
	Introduction to Instruction	Teaching
	Machine Instruction	Teaching
	Instruction set	Teaching
9th	Various types of Processors, Configuration	Teaching
	Addressing Modes	Teaching
	Interrupt: introduction & Types	Teaching
	Interrupt Structure	Teaching
10th	Program Controlled	Teaching
	Interrupt Controlled	Teaching/Quiz
	DMA & its transfer structure	Teaching
	I/O channels	Teaching
11th	Input- output Processing	Teaching/Assignment
	Question from Previous Papers	Teaching
	Question from Previous Papers	Teaching
	Question from Previous Papers	Teaching
12th	Question from Previous Papers	Teaching
	Question from Previous Papers	Teaching
	Question from Previous Papers	Teaching/Quiz
	Revision of syllabus	Teaching
13th	Revision of syllabus	Teaching

Tutorial sheet-1

1. Make JK-ff. Discuss its problem and solution.
2. What is state diagram? Make state diagram for SR-ff.
3. Explain working of clocked SRFF with its working and solution.
4. Discuss Master Slave ff.
5. How can you convert JKFF into D-FF and T-FF.

Tutorial sheet-2

1. Make SIPO out shift register to store 10101.
2. Make mod-5 counter using T-FF
3. Differentiate asynchronous and synchronous counter
4. Make PIPO register.
5. Define Counter and types of counter.

Tutorial sheet-3

1. Define memory and types of memory. Explain primary memory in detail.
2. What is optical storage? Explain optical storage devices.
3. Explain device based on direct access storage and discuss its read and write operation.
4. Differentiate between memory and secondary memory.

Tutorial sheet-4

1. Explain instruction format and solve X=(a+b)-(c*d) using 3,2,1,0 adressing
2. Write a note on DMA.
3. Explain interrupt driven data transfer.
4. Explain cycle steal in DMA.

Roll No. ..... **Total Pages : 02**

BCA/M-20 1888

LOGICAL ORGANIZATION OF COMPUTER-II

BCA-122

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory.

1. (a) Define Sequential Circuit and write its properties. **3**

(b) Prove that NAND and NOR are universal gates. **3**

(c) What is Primary Memory ? Write its types. **3**

(d) Write a note on Optical Storage. **3**

(e) Discuss Non-impact Printer. **3**

(f) How many FF are needed in Mod-10 Counter ? **1**

Unit I

2. (a) Explain JK FF working and its problem. **10**

(b) Write working of TFF. **6**

3. (a) Explain Master-Slave JK FF. **10**

(b) Write Excitation Table of JK and T-FF. **6**

Unit II

4. Explain Register as a Storage Unit. Make shift register to store 1010. Convert it into parallel in parallel out. **16**

5. Make Mod-10 Counter using T-FF. **16**

Unit III

6. Define Memory and its types. Explain difference between ROM and RAM. Also write types of ROM and RAM. **16**

7. (a) Write a note on Hard-Copy Output Devices.

(b) Write storage using Flash-Memory. **16**

Unit IV

8. (a) Explain addressing modes.

(b) Discuss Instruction format and solve :

$$X = (C + D) * (A - B)$$

using 2's addressing. **16**

9. (a) Explain speed mismatch between I/O and CPU using program controlled data transfer.

(b) Discuss the working of DMA. **16**

BCA-123 Mathematical Foundations-II

Maximum Marks: 100 **External: 80**
Minimum Pass Marks: 35 **Internal: 20**
Time: 3hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT- I

Propositions and logical operators, Truth tables and propositions generated by a set. Equivalence and implications, Laws of logic, Mathematical system, Proposition over a universe, Mathematical induction, Quantifiers

UNIT- II

Binary operations on a non-empty set, Groups, Subgroups, Normal Subgroups, Cosets, Factor groups, Rings, Sub rings, Ideals, Factor rings, Prime ideals, Minimal ideal, Fields, direct product of groups, Isomorphism of groups and rings (definitions and examples only)

UNIT- III

Addition and multiplication of matrices, Laws of matrix algebra, Singular and non singular matrices, Inverse of a matrix, Rank of a matrix, Rank of the product of two matrices, Systems of linear equations i.e. AX=0 and AX=B

UNIT- IV

Characteristic equations of a square matrix, Cayley-Hamilton Theorem, Eigen values and eigen vectors, Eigen values and eigen vectors of symmetric skew symmetric, Hermitian and skew –Hermitan matrices, Diagonalization of a square matrix.

REFERENCE BOOKS

1. Babu Ram : “Discrete Mathematics”
2. Shanti Naryana : “A Text Book Of Matrices”
3. Alan Doerr And Kanneth Levaseur, “Applied Discrete Structures For Computer Science”, Galogotia Publications Pvt. Ltd. New Delhi.
4. Seymour Lispschutz And MarcLars Lipson, “Discrete Mathematics”, Mcgrraw-Hill International Editions, Schaum’s Series, NewYork.

Lecture Plan

BCA-123

Week	Theory Lecture Day	Topic (including assignment/test)
1st	Propositions and logical operators	Teaching
2nd	Propositions and logical operators continue	Teaching
	Truth tables and propositions generated by a set	Teaching
	Truth tables and propositions generated by a set continue	Teaching
	Equivalence and implications	Teaching
3rd	Laws of logic	Teaching
	Mathematical system	Teaching
	Proposition over a universe	Teaching
	Mathematical induction	Teaching
	Quantifiers	Teaching
	Assignment and Test	**Assignment**
4th	Binary operations on a non empty set, Groups	Teaching
	Subgroups	Teaching
	Groups and Subgroups continue	Teaching
	Normal Subgroups	Teaching
	Co-sets	Teaching
5th	Factor groups	Teaching
	Rings	Teaching
	Sub rings	Teaching
	Ideals	Teaching
6th	Factor rings	Teaching
	Prime ideals	Teaching
	Minimal ideal	Teaching
	Fields	Teaching
7th	Fields continue	Teaching
	direct product of groups	Teaching
	Isomorphism of groups	Teaching
	Isomorphism of rings	Teaching
	Assignment and Test	**Assignment**
8th	Addition and multiplication of matrices	Teaching
	Laws of matrix algebra	Teaching
	Singular and non singular matrices, Inverse of a matrix	Teaching
	Rank of a matrix	Teaching
9th	Rank of the product of two matrices	Teaching
	Systems of linear equations AX=B	Teaching
	Systems of linear equations AX=0	Teaching
	Assignment and Test	**Assignment**
10th	Characteristic equations of a square matrix	Teaching
	Cayley-Hamilton Theorem	Teaching
	Eigen values and eigen vectors	Teaching
	Eigen values and eigen vectors of symmetric skew symmetric	Teaching
11th	Eigen values and eigen vectors of Hermitian and skew –Hermitan Matrices	Teaching
	Diagonalization of a square matrix.	Teaching
	Assignment and Test	**Assignment**
	Revision	

Tutorial sheet-1

1. Show that bi-conditional is both commutative and associative.
2. State and prove distributive laws.
3. Prove that 32^{n+2} -8n-9 is a multiple of 64

Tutorial sheet-2

1. Show that the intersection of any two left ideals of a ring is a left ideal of a ring.
2. Prove that the set {0,1,2,3,4,5} with addition modulous 6 and multiplication modulous 6 as composition is a ring.
3. Prove that [p V (p)] is a contradiction.
4. Using PMI prove that $2^n<3^n$, for every n belongs to N

Tutorial sheet-3

1. If A and B are two non singular matrices of the same order, show that AB is invertible and $(AB)^{-1}= B^{-1}A^{-1}$
2. Check whether the following system of equation is consistent or not. Solve if its consistent:

   2x-y+3z=3

   x+2y-z-5w=4

   x+3y-2z-7w=5
3. Define group.
4. If a group has four elements, show that it must be abelian.

Roll No. ..... **Total Pages : 04**

BCA/M-20 **1889**

MATHEMATICAL FOUNDATION-II

BCA-123

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory. Attempt *four* more questions selecting exactly *one* question from each Unit. All questions carry equal marks.

(Compulsory Question)

1. Explain the following :

(a) Logical statement

(b) Universal quantifer

(c) Binary operation

(d) Isomorphism of a ring

(e) Matrix

(f) Row echelon matrix

(g) Characteristic equation

(h) Hermitian matrix. **8×2=16**

Unit I

2. (a) If p and q be any statements, then construct the truth table of $\sim p \wedge q$ and $(p \rightarrow q) \rightarrow (p \wedge q)$. **8**

(b) By using laws of algebra of logical statements, prove that $\sim (p \vee q) \vee (\sim p \wedge q) \equiv \sim p$ and $(p \vee q) \wedge \sim p \equiv \sim p \wedge q$. **8**

3. (a) Prove by the principle of mathematical induction that the sum of first n natural numbers $= n(n + 1)/2$ i.e., $1 + 2 + 3 + \ldots\ldots\ldots + n = n(n + 1)/2$, for all $n \in N$. **8**

(b) Using principle of mathematical induction, prove that for all $n \in N$, $(2n + 7) < (n + 3)^2$. **8**

Unit II

4. (a) Show that I (that set of all integers) is an abelian group w.r.t. addition. **8**

(b) Prove that group G is abelian iff $(ab)^2 = a^2b^2$ for all $a, b \in G$. **8**

5. (a) Prove that the set of all $n*n$ matrices form a ring with identity but it is not commutative ring with respect to matrix addition and multiplication. **8**

(b) Prove that the intersection of two subrings in a ring. **8**

Unit III

6. (a) If $B=\begin{bmatrix}2 & 3 & 0\\ 1 & -1 & 5\end{bmatrix}$, $C=\begin{bmatrix}1 & -2 & 3\\ -1 & 0 & 2\end{bmatrix}$; find $3B + 4C$. **8**

(b) Without using the concept of inverse of matrix, find the matrix $\begin{bmatrix}x & y\\ z & u\end{bmatrix}$ such that $\begin{bmatrix}5 & -7\\ -2 & 3\end{bmatrix}\begin{bmatrix}x & y\\ z & u\end{bmatrix}=\begin{bmatrix}-16 & -6\\ 7 & 2\end{bmatrix}$. **8**

7. (a) Find the rank of the matrix $A=\begin{bmatrix}1 & 2 & 3\\ 3 & 2 & 1\\ 1 & 1 & 1\end{bmatrix}$. **8**

(b) Solve the following system of homogeneous equations :

$$3x + 2y + 7z = 0$$

$$4x - 3y - 2z = 0$$

$$5x + 9y + 23z = 0$$ **8**

Unit IV

8. (a) Find the characteristic roots and spectrum of matrix,

$$A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}. \qquad \textbf{8}$$

(b) If α is an eigen value of a non-singular matrix A, then prove that $\frac{|A|}{\alpha}$ is an eigen value of adj. A. **8**

9. State and prove Cayley-Hamilton theorem and verify Cayley-Hamilton theorem for the matrix $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & -1 & 1 \\ 0 & 1 & 0 \end{bmatrix}$.

16

BCA-124 Office Automation Tools

Maximum Marks: 100 **External: 80**
Minimum Pass Marks: 35 **Internal: 20**
Time: 3hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Desktop Publishing: Concept, Need and Applications; Hardware and Software requirements for DTP, An Overview and comparison between DTP packages, Common features of DTP.
Introduction to Page Maker: Features, System Requirements, Components of Page Maker Window, Introduction to Menu and Toolbars, PageMaker Preferences

UNIT – II

Creating of Publications: Starting PageMaker, Setting Page size, Placing the text Formatting the text: Character Specification Paragraph setting: Paragraph Specification, Paragraph Rules, Spacing, Indents/Tabs, Define Styles, Hyphenation, Header & Footer, Page Numbering, Saving and Closing publication.
Editing Publication: Open a publication ,Story editor, Find and change the text, Change character and Paragraph attributes ,spell checking ,Selecting text, Cut, Copy, Paste, Paste multiple, Working with columns

UNIT – III

Word Processing: Introduction to Office Automation, Creating & Editing Document, Formatting Document, Auto-text, Autocorrect, Spelling and Grammar Tool, Document Dictionary, Page Formatting, Bookmark, Advance Features of Word-Mail Merge, Macros, Tables, File Management, Printing, Styles, linking and embedding object.

UNIT – IV

Presentation using PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides, Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds, Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect.

TEXT BOOKS:

1. PageMaker- Complete by R.Shamms, Mortier & RickWallacl,Techmedia.
2. Learning PageMaker by Ramesh Bangia of Khanna Book Publishing Co. Pvt. Ltd.
3. Microsoft Office –"Complete Reference"–BPB Publication.
4. Learn Microsoft Office –Russell A.Stultz–BPB Publication.

REFERENCES BOOKS:

1. Courter, G. Marquis. "Microsoft Office-2000", Professional Edition.BPB.
2. Koers, D. Microsoft Office XP Fast and Easy. PHI.
3. Nelson, S.LandKelly, JOfficeXP: "The Complete Reference",TataMcGraw-Hill.

Lecture Plan

BCA-124

Week	Theory	
	Lecture Day	**Topic (including assignment/test)**
1st	Desktop Publishing : Concept, Need and Applications	Teaching
	Hardware and Software requirements for DTP	Teaching
	An Overview and Comparison between DTP Packages	Teaching
	Common features of DTP	Teaching
2nd	CLASS TEST	Teaching/Test
	Introduction to Page Maker	Teaching
	Features, System Requirements	Teaching
	Components of PageMaker Window	Teaching
3rd	----------DO----------	Teaching
	Introduction to Menu and Toolbars	Teaching
	--------DO----------	Teaching
	UNIT-1	Teaching/ Doubt Session/ Oral Revision
4th	Creating of Publications : Starting Page Maker	Teaching
	Setting Pagesize	Teaching
	Placing the text Formatting the text	Teaching
	ASSIGNMENT	Teaching/Assignment
5th	Character Specification, Paragraph setting: Paragraph Specification	Teaching
	Paragraph Rules	Teaching
	Spacing, Indents/Tabs	Teaching
	Define Styles	Teaching
6th	Hyphenation	Teaching
	Header & Footer	Teaching
	Page Numbering	Teaching
	Saving and Closing publication	Teaching
7th	CLASS TEST	Teaching/Test
	Editing Publication : Open a publication	Teaching
	Story Editor	Teaching
	Find and change the text	Teaching
8th	Character and Paragraph attributes	Teaching
	Spell checking	Teaching
	Selecting Text	Teaching
	Cut, Copy, Paste, Paste Multiple	Teaching
9th	Working with columns	Teaching
	UNIT-2	Teaching/ Doubt Session/ Oral Revision
	Word Processing: Introduction to Office Automation	Teaching
	Creating &Editing Document, Formatting Document	Teaching
10th	Auto-text, Autocorrect, Spelling and Grammar Tool	Teaching
	Document Dictionary	Teaching
	CLASS TEST	Teaching/Test
	Page Formatting, Bookmark	Teaching
11th	Advance Features of Word-Mail Merge, Macros	Teaching
	ASSIGNMENT	Teaching/Assignment
	Tables, File Management, Printing	Teaching
	Styles, Linking and Embedding Object	Teaching
12th	UNIT-3	Teaching/ Doubt Session/ Oral Revision
	Presentation using Power Point: Presentation, Creating, Manipulating & Enhancing Slides	Teaching
	Organizational Charts, Excel Charts, WordArt	Teaching
	ASSIGNMENT	Teaching/Assignment
13th	Layering art Objects, Animations and Sounds	Teaching
	Inserting Animated Pictures or Accessing through Object	Teaching
	Inserting Recorded Sound Effect or In-Built Sound Effect	Teaching
	UNIT-4	Teaching/ Doubt Session/ Oral Revision

Tutorial sheet-1

1. Explain any four DTP packages in brief.
2. Explain various features of page maker.
3. What is the purpose of word art.? Explain word wrap?
4. What is the purpose of preferences command in page maker? Explain various options available in preferences dialog box.

Tutorial sheet-2

1. Explain various steps to set wordspace and letter space in page maker?
2. Explain various steps to resize and move the text block in page maker?
3. Explain various steps to change the specified text with other text in a publication by using examples.?
4. Write short note on paste multiple in page maker.

Tutorial sheet-3

1. What are the advantages and disadvantages of office automation.
2. Explain various steps to create a style in MS-WORD?
3. Explain various steps to add a hyperlink in a MS-WORD document?
4. Write a short note on auto text in MS-WORD?

Tutorial sheet-4

1. Define Power Point. Explain various applications of Power Point?
2. Explain various steps to add clip art on a slide?
3. What do you mean by transition? Explain various steps to apply transition effects?
4. Explain various steps to insert, move, resize a text box on a slide?

Roll No. ..... **Total Pages : 02**

BCA/M-20 **1890**

OFFICE AUTOMATION TOOLS

BCA-124

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) Explain the concept of Page Maker Preferences.

(b) Explain the concept of Paragraph Specification in Page Maker.

(c) Write a short note on Spelling and Grammar in MS Word.

(d) Write a short note on word ART. **4×4=16**

Unit I

2. What is Page Maker ? Explain Menu and Toolbar used in Page Maker. **16**

3. (a) What is DTP ? Explain Hardware and Software Requirement for DTP.

(b) Explain the System Requirement of Page Maker. **16**

Unit II

4. (a) How can you add Footer and Header in the master page ? What are their purpose ?

(b) Explain Indents/Tabs in Page Maker with example. **16**

5. (a) Explain various text formatting features in Page Maker.

(b) How to insert graphics object in Page Maker ? **16**

Unit III

6. Explain any *six* features of MS-Word. How can these features be implemented in word ? Explain with example. **16**

7. Explain the following w.r.t. MS-Word :

(a) Template (b) Mail Merge

(c) Table (d) Linking. **16**

Unit IV

8. What do you mean by Template ? Write the steps to create presentation using built in templates ? Write a short note on different view in PowerPoint ? **16**

9. What do you mean by Animation ? Explain various steps to apply Custom Animation effects. **16**

BCA-125 Structured System Analysis and Design

Maximum Marks: 100 **External: 80**
Minimum Pass Marks: 35 **Internal: 20**
Time: 3hours

Note: Examiner will be required to set Nine Questions in all. First Question will be Compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

System Concept: Definition, Characteristics, Elements of system, Physical and abstract system, open and closed system, man-made information systems.
System Development Life Cycle: Various phases of system development, Considerations for system planning and control for system success. Role of system analyst.

UNIT – II

System Planning: Bases for planning in system analysis: Dimensions of Planning. Initial Investigation: Determining user's requirements and analysis, fact finding process and techniques.
Tools of structured Analysis: Data Flow diagram, data dictionary, IPO and HIPO charts, Gantt charts, pseudo codes, Flow charts, decision tree, decision tables.
Feasibility study: Technical, Operational & Economic Feasibilities.

UNIT – III

Cost/Benefit Analysis: Data analysis cost and benefit analysis of a system.
Input/ Output and Form Design, File Organization and database design: Introduction to files and database, File structures and organization, objectives of database design, logical and physical view of data.

UNIT – IV

System testing: Introduction, objectives of testing, test planning, testing techniques.
Quality assurance: Goal of quality assurance, levels of quality assurance
System implementation and software maintenance: primary activities in maintenance, reducing maintenance costs.

TEXT BOOKS:

1. Awad M. Elias, "System Analysis and Design", Galgotia Publication.

REFERENCE BOOKS:

1. IgorHawryszkiewyez, "Introduction to System Analysis and Design", Prentice-Hall.
2. JeffreyL. Whitten, and Lonnie D. Bentey, " System Analysis and Design Methods", TataMcGraw-Hill.
3. MarkLejk, and DavidDeeks, "An Introduction to System Analysis Techniques", Prentice Hall.

Lecture Plan

BCA-125

Week	Theory	
	Lecture Day	**Topic (including assignment/test)**
1st	System concept: Definition, Characteristics	Teaching
	Elements of system, Physical and abstract system	Teaching
	Open and Closed system	Teaching
	Man-made information systems	Teaching
2nd	System Development Life Cycle: Various phases of system development	Teaching/ Assignment
	Considerations for System planning and control for system success.	Teaching
	Role of system analyst.	Teaching
	Class test	Class test/ doubt session
3rd	System Planning: Base for planning in system analysis	Teaching/Assignment
	Dimensions of Planning, Initial Investigation	Teaching
	Determining user's requirements and analysis, fact finding process and techniques.	Teaching
	Tools of structured Analysis: Data Flow diagram, data dictionary	Teaching
4th	Tools of structured Analysis: IPO and HIPO charts, Gantt charts, Pseudocodes	Teaching
	Tools of structured Analysis: Flowcharts, decision tree, decision tables.	Teaching
	Feasibility study: Technical, Operational	Teaching
	Feasibility study: Economic Feasibilities.	Teaching
5th	Assignment viva	Assignment
	Cost/Benefit Analysis	Teaching
	Data analysis cost	Teaching
	Benefit analysis of a system	Teaching
6th	Input/Output and Form Design	Teaching
	File Organization	Teaching
	Database design	Teaching/Quiz
	Introduction to files and database	Teaching
7th	File structures and organization	Teaching
	Objectives of database design	Teaching
	Logical and physical view of data.	Teaching
	Revision	Teaching
8th	Doubt session and viva	Teaching/Assignment
	Class test	Class test
	System testing: Introduction	Teaching
	Objectives of testing	Teaching
9th	Test planning,	Teaching
	Testing techniques	Teaching
	Quality assurance	Teaching
	Subject viva	Teaching
10th	Goal of quality assurance	Teaching
	Levels of quality assurance	Teaching
	System implementation	Teaching/Quiz
	Software Maintenance	Teaching
11th	Revision	Teaching
	Revision	Teaching/Assignment
	Primary activities in maintenance, Reducing maintenance cost	Teaching
12th	System development Life Cycle	Teaching
	Examples on IPO and HIPO charts,	Teaching
	GanttCharts, Pseudocodes	Teaching
	Examples on Flow charts, decision tree, decision tables.	Teaching/Quiz
13th	Subject viva	Teaching
	Revision	Teaching
	Revision	Teaching
	Revision	Teaching
	Doubt Session	Teaching

Tutorial sheet-1

1. What is SDLC?
2. What are various elements of system?
3. Explain planning phase of a system?
4. What is the role of system analyst?
5. Classify system types. What are their characteristics?

Tutorial sheet-2

1. What are the different techniques for initial investigation?
2. What is feasibility study? Give examples?
3. What is requirement analysis phase?
4. Differentiate between:

(a) IPO/HIPO/GANTTS chart
(b) DFD/Flow charts/ Decision trees

Tutorial sheet-3

1. Differentiate between logical and physical view of data?
2. Explain input/output from design?
3. Write about cost benefit analysis?
4. Differentiate between file system and database systems. Give example characteristics, operation etc.

Tutorial sheet-4

1. What is system maintenance?
2. What is testing?
3. What is SQA?
4. Explain various implementation techniques.

Roll No. ..... **Total Pages : 03**

BCA/M-20 1891

STRUCTURED SYSTEM ANALYSIS AND DESIGN

BCA-125

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting exactly *one* question from each Unit. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) What do you mean by system ?

(b) Name the various phases of system development.

(c) What are the various steps in initial investigation ?

(d) What is the difference between IPO and HIPO charts ?

(e) Enlist the various methods of evaluating costs and benefits of a project.

(f) What is a form ?

(g) What is the difference between verification and validation ?

(h) Name the various types of maintenance. **8×2=16**

Unit I

2. (a) What type of skills that a system analyst must possess ? Explain in detail. **8**

(b) Explain the various elements of a system. **8**

3. (a) Describe the various considerations in project planning in detail. **8**

(b) Differentiate between :

(i) Open and Closed system

(ii) Physical and Abstract System. **8**

Unit II

4. Write short notes on the following :

(a) Decision tree

(b) Data Flow Diagram

(c) Data dictionary

(d) Gantt Chart. **16**

5. (a) What do you mean by feasibility study ? Explain various types of feasibility study in detail. **8**

(b) What are the various strategies for determining information requirements ? **8**

Unit III

6. (a) Discuss the role of databases in a system development. **8**

(b) Discuss various types of file organization used in a design of a system. **8**

7. What is cost/benefit analysis ? Explain various types of costs/benefit analysis. How cost and benefits can be analyzed in a project ? Explain. **16**

Unit IV

8. (a) What do you mean by audit trails ? Explain. **8**

(b) What is the role of training in implementation of a system ? **8**

9. What is the need of testing in the development of a system ? Explain various types of testing techniques using suitable examples. **16**

BCA-126 Personality Development

Maximum Marks: 100 **External: 80**
Minimum Pass Marks: 35 **Internal: 20**
Time: 3hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT- I

Personality & Personal Grooming – A Brief Introduction to Personality and self-concept, Element of Personality, Determinants of Personality, Causes of deranged Personality, Personality Analysis.
Grooming, Personal hygiene, Social, Business and Dining Etiquettes, Body language use and misuse, Art of good Conversation, Art of Intelligent Listening.

UNIT- II

Interpersonal Skills & Role playing: Dealing with seniors, colleagues, juniors, customers, suppliers, contract workers, owners etc at work place

UNIT- III

Group Discussion & Presentation skills: Team behavior, how to effectively conduct yourself during GD, do's and don'ts, clarity of thoughts and its expression Presentation skills & seminar skills

UNIT- IV

Interviews Preparation: Intent and purpose, selection procedure, types of interviews, Self planning, writing winning resume, knowledge of company profiles, academics and professional knowledge review, update on current affairs and possible questions, time – keeping, grooming, dress code, document portfolio, frequently asked questions and their appropriate answers, self – introduction, panel addressing, mental frame – work during interviews

REFERENCE BOOKS:

1. "Personal Management and human Resources", by C. S. Venkata Ratanamand B. K. Srivastava, published by TataMcGraw-Hill.
2. "Human Behaviour at Work", By KeithDavis, TataMcGraw-Hill Pub. Ltd.
3. I'm Ok, You're OK, by Thomas A. Harris, Published by : PanBooks, London and Sydney.
4. "Pleasure of your Company", By Ranjana Salgaocar, Published by Pyramid Publishers, Goa.
5. "How to Get the Job You Want, By Arun Agarwal, Published by Vision Books , New Delhi.
6. Get That Job, Rohit Anand & Sanjeev Bikhachandani, HarperCollins.

Lecture Plan

BCA-126

Lectures	Topics

1. Personality & Personal Grooming–A Brief Introduction to Personality and self concept
2. Element of Personality
3. Determinants of Personality
4. Causes of deranged Personality
5. Personality Analysis
6. Grooming
7. Personal Hygiene
8. Social, Business and Dining Body Language use and issue, Art o fgood Conversation, Intelligent Listening.
9. Interpersonal Skills & Role playing: Dealing with seniors, colleagues, juniors, customers, suppliers, contract workers, owner set cat workplace
10. Group Discussion & Presentation skills: Team behavior
11. How to effectively conduct yourself during GD, do's and don'ts, clarity of thoughts and its expression
12. Presentation skills
13. Seminar skills
14. Interviews Preparation: Intent and purpose, selection Procedure types of interviews
15. Self planning
16. Writing winning resume
17. Knowledge of company profiles
18. Academics and professional knowledge review
19. Update on current affairs and possible questions
20. Time- keeping, grooming, dresscode
21. Document portfolio
22. Frequently asked questions and their appropriate answers
23. Self- introduction, panel addressing
24. Mental frame–work during interviews

Tutorial sheet-1

1. Define personality. Discuss in detail the causes of deranged personality?
2. Describe in detail the ways of achieving the art of a good conversation?
3. Define grooming. Discuss the significance of business etiquette.

Tutorial sheet-2

1. Define interpersonal skills. Discuss their significance while dealing with seniors and colleagues?
2. Define role playing with two illustrations?

Tutorial sheet-3

1. Discuss the essentials of group discussion?
2. Explain various means of achieving effective presentation skills?
3. Explain various means of achieving effective seminar skills?

Tutorial sheet-4

1. Define resume? Prepare a resume for the post of a computer programmer?
2. Discuss in detail various ways of preparing for interviews?

Roll No. ..... **Total Pages : 02**

BCA/M-20 **1892**

PERSONALITY DEVELOPMENT

BCA-126

Time : Three Hours] [Maximum Marks : 80

Note : Q. No. **1** is compulsory. Attempt *Four* more questions selecting *one* question from each Unit.

Compulsory Question

1. Write short answers of the following :

(i) What is Deranged Personality ?

(ii) Define Role Playing.

(iii) Write a short note on the role of Team behaviour.

(iv) Define Resume.

(v) Write a short note on the importance of Dress code.

(vi) Define Group Discussion.

(vii) Write a short note on presentation skills.

(viii) Define personal hygiene. **8×2=16**

Unit I

2. Define Personality. Write a detailed note on the elements of personality. **4+12=16**

3. Discuss the essentials of intelligent listening. **16**

Unit II

4. Describe the importance of interpersonal skills. **16**

5. Discuss the function of role playing. **16**

Unit III

6. Define Group Discussion. Discuss the essentials of an effective group discussion. **4+12=16**

7. Explain the features of Presentation skills. **16**

Unit IV

8. Prepare a resume for the post of a Computer Programmer in a multi-national company. **16**

9. Discuss various steps involved in interviews' preparation. **16**

Software Lab. I (BCA-131)

Office Automation Tools

Examination: 100 **Total: 100**

1. Introduction about the menus and toolbars in page maker.
2. Setting up a page size in page maker.
3. Steps to save and close a publication.
4. Write down the steps to apply spelling and grammer checking and correction.
5. Write down the steps to use thesaurus in Ms-Word.
6. Write down the steps to find and replace a text in the Ms- Word Document.
7. Write down the steps to apply bullets and numbering in the Ms-Word document.
8. Write down the steps to use mail merge.
9. Write down the steps to use macros.
10. Write down the steps to insert pictures and clipart to the slides.
11. Write down the steps to apply animations and transitions in power point.
12. Write down steps to insert sounds in MS-power point.

Software Lab. II (BCA 132)

Advanced Programming in C

Examination: 100 **Total: 100**

List of Programs to be implemented using C language

1. Develop the following application for Production & Sales Analysis (by using arrays)
   A Company manufactures five categories of products and the number of items manufactured and sold are recorded product wise every week in a month. The company reviews its production scheduled at every month-end. The review may require one or more of the following information
   a) Value of weekly production and sales.
   b) Total value of all the products manufactured
   c) Total value of all the products sold
   d) Total value of each product, manufactured and sold.

2. Develop the following by using string's functions
   a) Count number of vowels in a string.
   b) Count words in a string.
   c) Length of a string using a function.
   d) Compare two strings using a function.
   e) Delete vowels from a string.
   f) Reverse the word.
   g) Replace character „a' by „b' using function from a string.

3. Develop the code for processing of customer list (Using character arrays and Strings)
   Telephone numbers of important customers are recorded as:

FULL NAME	TELEPHONE NUMBER
Joseph Louis Lagrange	869254
Jean Robert Argand	900863
Carl Freidrich Gauss	745648
…….	…….
…….	…….
…….	…….

   It is desired to prepare a revised alphabetical list with surname first, followed by a comma and the initials of the first And middle names. For example, Argand, J.R

4. Develop a top down modular program that will perform the following tasks:
   a) Read two integer arrays with unsorted elements.
   b) Sort them in ascending order.
   c) Merge the sorted arrays.
   d) Print the sorted list
   Use functions for carrying out each of the above tasks. The main function should have only function calls.

5. Develop the following application for Book Shop inventory(by using structures)
   A book shop uses a personal computer to maintain the inventory of books that are being sold at the shop. The list includes details such as author, title, price, publisher, stock position, etc.
   a)Whenever a customer wants a book, the shopkeeper inputs the title and author of the book and the system replies whether it is in the list or not.
   b) If it is not, an appropriate message is displayed.
   c) If the book is in the list, then system displays the book details and ask for number of copies.
   d) If the requested copies are available, the total cost of the books is displayed; otherwise the message required copies not in stock is displayed.

6. Develop the following applications by using concept of files
   a) Copy the content of one file to another file.
   b) To read last n characters from the file.
   c) To convert the file contents in upper case & write contents in a output file.
   d) Enter 10 numbers, save all the positive numbers to one file, all the negative numbers to another file.
   e) Implement a program which replaces a specified word in a file with another word if it exists. If it does not exists display an appropriate message.
   f) To find a given word in a file if it exist and also show the location of that word in a file

7. Develop code for the following conversions:
   a) Decimal to Binary using Bitwise and operator
   b) Binary to Decimal number
   c) Decimal to Hexadecimal Conversion in C.
   d) Decimal number to Octal Conversion

8. Develop a macro, PRINT-VALUE which can be used to print two values of arbitrary type.