

CS : COMPUTER SCIENCE AND ENGINEERING
IT : INFORMATION TECHNOLOGY
Programming Methodology

INDEX

Sr. No.	Contents	Sub-Topics	Pg. No.
1. C–Fundamentals and Input Output			
	Notes	Introduction to C Programming	1
		C Fundamentals	1
		Operators and Expressions	7
		Data Input and Output	16
		LMR (Last Minute Revision)	23
	Assignment–1	Questions	25
	Test Paper–1	Questions	29
2. Control Statements			
	Notes	if Statement	33
		switch Statement	35
		goto Statement	36
		while Statement	37
		do–while Statement	37
		for Statement	38
		LMR (Last Minute Revision)	41
	Assignment–2	Questions	42
	Test Paper–2	Questions	47
3. Arrays			
	Notes	Need of an Array	52
		One Dimensional Array	53
		Two Dimensional Array	55
		Three Dimensional Array	56
		Introduction to string	57
		String functions	59
		Table of strings	60
		LMR (Last Minute Revision)	61
	Assignment–3	Questions	63
		Test Paper–3	Questions

Sr. No.	Contents	Sub-Topics	Pg. No.
4. Functions			
	Notes	Introduction	73
		Need For User-defined Functions	73
		C-Function	73
		Return values and their types	74
		Calling a function	75
		Category of functions	75
		Nesting of functions	76
		Recursion	77
		Function with Arrays	78
		Function Prototyping	78
		Scope and Lifetime of Variables in function	79
		LMR (Last Minute Revision)	84
	Assignment-4	Questions	85
Test Paper-4	Questions	91	
5. Pointers, Structures and Union			
	Notes	Introduction	96
		Accessing the address of a variable	97
		Declaring and Initializing pointers	97
		Accessing a variables through pointers	98
		Pointer expressions	99
		Pointer increment and scale factor	100
		Pointers and Arrays	100
		Pointers and Character Strings	101
		Pointers to functions	102
		Introduction to Structures	103
		Structure Initialization	105
		Comparison of Structure variables	106
		Arrays of Structures	106
		Arrays within Structures	107
		Structures within structure	107
		Structures and functions	109
		Union	110
		Size of Structures	111
	LMR (Last Minute Revision)	112	
	Assignment-5	Questions	113
Test Paper-5	Questions	118	

Sr. No.	Contents	Sub-Topics	Pg. No.
6.	OOPM Fundamentals and C++		
	Notes	Introduction	123
		The Object Oriented Approach	123
		Classes	126
		Structures and Classes are related	126
		Accessing Member functions within the class	128
		Data hiding	129
		Passing objects as arguments	131
		Passing objects by value	131
		Returning objects from functions	132
		Friend functions	134
		Friend Classes	135
		Inline functions	136
		Static Data members	137
		Static Member functions	138
		Constructors	140
		Parameterized Constructors	142
		Destructors	143
		Difference between Constructors and Destructors	144
		Constructors with default arguments	144
		The this pointers	145
		Function Overloading	146
		Copy Constructors	147
		Creating a member operator function	148
		Inheritance	150
		Inheritance and Protected members	150
		Constructors, Destructors and Inheritance	151
		Virtual Function	152
	Pure Virtual Functions	153	
	Abstract classes	155	
	Early Vs. Late Binding	155	
	LMR (Last Minute Revision)	155	
	Assignment-6	Questions	157
	Test Paper-6	Questions	161
	ID Problems	Questions	164
	Practice Problems	Questions	168
SOLUTIONS			
	Answer Key	Assignment	196
	Model Solutions	Assignment	198
	Answer Key	Test Paper	212
	Model Solutions	Test Papers	214
	Answer Key	ID Problems	227
	Model Solutions	ID Problems	228
	Answer Key	Practice Problems	230
	Model Solutions	Practice Problems	231