B.Com (Digital)
GENERIC ELECTIVE COURSE(GE)

SEMESTER-V
(BCDB33508T): FUNDAMENTALS OF PROGRAMMING LANGUAGES

MAX. MARKS: 100
EXTERNAL: 70
INTERNAL: 30
PASS: 40%
Credits: 6

Objective:

To understand fundamentals of programming languages and to develop business applications and commercial websites.

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER:

1. The syllabus prescribed should be strictly adhered to.
2. The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. The candidates will attempt two questions from each section.
3. Section C will have fifteen short answer questions covering the entire syllabus. Each question will carry 3 marks. Candidates will attempt any ten questions from this section.
4. The examiner shall give a clear instruction to the candidates to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.
5. The duration of each paper will be three hours.

INSTRUCTIONS FOR THE CANDIDATES:

Candidates are required to attempt any two questions each from the sections A and B of the question paper and any ten short questions from Section C. They have to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.

Section A

Programming Basics:Problem definition, Algorithm, Flowchart, Coding, Compilation, Testing. Functional/Procedural Oriented Programming Approach: History of C, Structure of a C program, Character set, Identifiers and keywords, constants, variables, data types. I/O functions: formatted & unformatted console I/O functions, Storage classes.Operators and expressions: Arithmetic, Unary, Logical, Relational operators, assignment operators, Conditional operators, Hierarchy of operations type conversion. Control statements: Branching statements,looping statements and Jumping.Functions: User defined and Library functions, Function prototype, definition and call, formal and actual arguments, local and global variables, methods of parameter passing to functions, recursion. Arrays, Structure and union, Pointers.

Section B

Object Oriented Programming Approach (OOP)**:** Features of OOP, Comparison of C, C++ and Java, Structure of Java program.

Class: Syntax, Instance variable, class variables, methods, constructors, overloading of constructors and methods.

Inheritance**:** Types of inheritance, use of super, method overriding, final class, abstract class, wrapper classes.

Exception Handling**:** Types of errors, Exception classes, Exception handling in java, use of try, catch, finally, throw and throws.

Multithreaded Programming: Creating Threads, Life cycle of thread, Thread priority, Thread synchronization, Inter-thread communication.

Reference Books:

1. E. Balagurusamy, Programming in C, Tata McGraw-Hill.
2. Kamathane, Programming in C, Oxford University Press.
3. E. Balagurusamy "*Programming with Java*", TMH
4. Patrick Naughton and Herbert Schildt, "*The Complete Reference Java 2*", TMH