YVUCET – 2020 SYLLABUS
Test -105: COMPUTER SCIENCE
SECTION – A (30 Marks)
Computer fundamentals & Office Tools, Programming in C

Types of computers – Block diagram of a computer- Memory - Main Memory - RAM and ROM- I/O Units - Secondary Memory - Operating Systems - DOS Commands - Working with files and folders - Running Programs - Using Recycle Bin.

Microsoft Office - MS Word Basics - Headers, Footers, Tables - Graphics - Templates -

Macros - Mail Merge. Power Point Basics - Creating presentations - Menus - Tool Bar - Opening a presentation - Creating New Slide - Deleting a Slide - Copying a Slide - Slide Numbering - Saving - Closing - Printing.

MS Excel - Work Sheets - Formatting - Functions - Charts - Graphical - Worksheets as Databases - Linking.

Algorithm – Key features of Algorithms, Flow Charts.

Introduction to C – Structure of C Program –Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples

Decision Control and Looping Statements: Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

Arrays: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array, One dimensional array, Two dimensional Arrays, Multidimensional Arrays.

Strings: Introduction, Characters, String handling functions.

Functions: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Storage Classes – Recursive functions.

Pointers: Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables.

Structure, Union, and Enumerated Data Types: Introduction – Nested Structures – Arrays of Structures – Structures and Functions – Unions – Enumerated Data Types

SECTION – B (30 Marks)

Programming with Java and Data Structures

FUNDAMENTALS OF OBJECT – ORIENTED PROGRAMMING: Object Oriented paradigm –Basic concepts of Object Oriented Programming – Benefits of OOP –Applications of OOP.

Overview of Java Language: Simple Java Program – Java Program Structure – Java Tokens- Java Statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments.

Constants, Variables and Data types: Constants – Variables – Data types – Declaration of Variables-Giving Values to variables- Scope of Variables-Symbolic Constants-Type Casting.

Operators and Expressions: Arithmetic Operators – Relational Operators- Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operators – Bitwise

Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Operators – Operator Precedence and Associativity.

Decision Making and Branching: Decision Making with If statement – Simple If Statement-If else Statement-Nesting If Else Statement- the Else If Ladder-The switch Statement – The ?: operator.

Decision Making and Looping: The while statement – The do statement – The for statement – Jumps in Loops, labelled loops.

Class, Objects and Methods: Defining a Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing class members

Arrays, Strings and Vectors: One-dimensional Arrays-creating an Array – Two dimensional Arrays – Strings – Vectors – Wrapper Classes – Enumerated Types.

Interfaces: Multiple Inheritances - Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.

Concept of Abstract Data Types (ADTs)- Data Types, Data Structures, Storage Structures, Primitive and Non-primitive Data Structures, Linear and Non-linear Data Structures.

Stacks: Definition, ADT, Array and Linked representations, Implementations and Applications

Queues: Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Priority Queues, Implementations and Applications.

Sorting and Searching: Selection, Insertion, Bubble, Merge, Quick, Heap sort, Sequential and Binary Searching.

SECTION- C (40 Marks)
Data Base Management System and Software Engineering

Overview of Database Management System: Introduction, Data and information, Database, Database management System, Objectives of DBMS, Evaluation of Database management System, Classification of Database Management System, file-based system, Drawbacks of file-Based System, advantages of DBMS, Data models, Database Architecture.

Relational Model: Introduction, CODD's Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra.

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification.

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language. View.

PL/SQL: Introduction, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Cursors, Steps to create a Cursors, Procedure, Function, Exceptions Handling.

INTRODUCTION: Software Engineering Process paradigms - Project management - Process and Project Metrics – software estimation - Empirical estimation models - Planning - Risk analysis.

REQUIREMENTS ANALYSIS: Requirement Engineering Processes – Feasibility Study – Software Requirement Analysis – Analysis Concepts and Principles – Analysis Process – Analysis Model.

[Note : This Syllabus only for 2020 YVU CET]