

**SYBCA SEM III 2021-22**  
**INTERNAL MCQ EXAM SYLLABUS**  
**301 - STATISTICAL METHODS**

UNIT I : Content Introduction and Presentation of statistical data Types of variables Uni-variate, bi-variate and multivariate data Uni-variate and bi-variate frequency distributions
UNIT II : Measure of central tendency Mean (i). Arithmetic Mean (ii). Geometric Mean (iii). Harmonic Mean Median mode
UNIT III : Measures of dispersion (absolute as well as relative) Mean deviation Standard deviation Coefficient of mean deviation and coefficient of variation
UNIT IV : Correlation Introduction Types of correlation and scatter diagrams Karl-Pearson's correlation coefficient Spearman's Rank correlation coefficient

## 302- Software Engineering

Unit 1. Introduction
1.1 Concepts of Software.
1.2 Software characteristics.
1.3 Software Engineering: definition.
1.4 Types of Software
Unit 2. Software Process Model
2.1 Waterfall Model
2.2 Prototype Model
2.3 Incremental Model
2.4 Spiral Model
Unit 3. Requirement analysis
3.1 Introduction.
3.2 Requirement gathering techniques & Fact Finding, Recording Outcome.
3.3 Effort distribution.
3.4 Importance of Requirement Specifications.
3.5 SRS Characteristics.
3.6 Software Requirement Specification Document.

## 303: Database handling using Python

### Unit-1: Introduction to SQLite:

1.1 SQLite advantages, features and Fundamentals:

1.1.1 SQLite datatype : ( Dynamic type, SQLite manifest typing & type affinity) (NULL, INTEGER, REAL, TEXT, BLOB)

1.1.2 Transaction, Rollback, Commit

1.2 Data Filtering and Triggers

1.2.1 Filtering: Distinct, where, between, in, like, Union, intersect, Except, Limit, IS NULL

1.2.2 Having, Group by, Order by, Conditional Logic (CASE)

1.3 SQLite joins: Inner, left, cross, self, Full outer joins.

1.4 SQLite Trigger:

1.4.1 Concepts of Trigger, Before and After trigger (on Insert , Update, Delete)

1.4.2 Create, Drop trigger, Disable and Enable trigger

### Unit-2: Database backup and CSV handling:

2.1 SQLite dump :

2.1.1 Dump specific table into file, Dump only table structure

2.1.2 Dump entire database into file

2.1.3 Dump data of one or more tables into a file

2.2 CSV files handling:

2.2.1 Import a CSV file into a table

2.2.2 Export a CSV file from table

### Unit-3: Python interaction with SQLite:

3.1 Module: Concepts of module and Using modules in python.

3.1.1 Setting PYTHONPATH, Concepts of Namespace and Scope

3.1.2 Concepts of Packages in python

3.2 Importing sqlite3 module

3.2.1 connect () and execute() methods.

3.2.2 Single row and multi-row fetch ( fetchone(), fetchall())

3.2.3 Select, Insert, update, delete using execute () method.

3.2.4 commit () method.

### Unit-4: Python Interaction with text and CSV:

4.1 File handling ( text and CSV files) using CSV module :

4.1.1 CSV module , File modes: Read , write, append

4.2 Important Classes and Functions of CSV modules:

4.2.1 Open(), reader(), writer(), writerows(), DictReader(), DictWriter()

4.3 Dataframe Handling using Panda and Numpy:

4.3.1 csv and excel file extract and write using Dataframe

4.3.2 Extracting specific attributes and rows from dataframe.

4.3.3 Central Tendency measures :

4.3.3.1 mean, median, mode, variance, Standard Deviation

4.3.4 Dataframe functions: head, tail, loc, iloc, value, to\_numpy(), describe()

### Unit-5: Data Visualization using dataframe:

5.1 importing matplotlib.pyplot and plotting: ( only two dimensional Plots)

5.1.1 range() , subplot() , legend(), columns(), len() functions.

5.2 scatter plot: concept of Scatter plot, set title, xlabel and ylabel)

5.3 Line chart : concept of line plot: plot(), set\_title(), legend()

5.4 histogram chart : Concepts of histogram hist(),set title, xlabel and ylabel

5.5 Bar Chart : Concepts of Bar chart, bar(),set title, xlabel and ylabel.



## 304: Object Oriented Programming and Data Structures

### (OOPP & D.S.) Unit 1. Concepts of OOPS:

- 1.1 Difference between procedural programming and OOPS
- 1.2 Various library(header) files require for C++
- 1.3 Data types in C++
- 1.4 Concepts of String:
  - 1.4.1 character Array
  - 1.4.2 pointer to character array
  - 1.4.3 Use of String.h and its important functions:  
(strcmp, strcat, strcpy, strlen, strrev )
- 1.5 Concepts of Class and Objects.

### Unit 2. Data Encapsulation and inheritance:

- 2.1 Access controls concepts (Public, Private, Protected) and difference among them.
- 2.2 Declaring simple class, member variables and member functions.
- 2.3 Concepts and use of enum.
- 2.4 Concepts of Data hiding, abstraction and encapsulation with examples
- 2.5 Concepts of Inheritance and Types of Inheritance
- 2.6 Constructors and Destructors

### Unit 3. Polymorphism

- 3.1 Concepts of Polymorphism
- 3.2 Compile time and Run time Polymorphism
- 3.3 Overloading and Overriding:  
Concepts, difference and application
- 3.4 Concepts of friend function
- 3.5 Concepts of virtual function and pure virtual function

### Unit 4. Data Structure

- 4.1 Introduction of Data Structure and application areas.
- 4.2 Recursion concepts
- 4.3 Difference among Linear and Non-Linear Data Structure
- 4.4 Stack
  - Concepts of Stack(LIFO)
  - Pop, Push and Display(Peep)

## **Course: 305-1: Web Designing-1**

**Unit 1.** Working with HTML5 and CSS: 1.1 concepts of CSS: 1.1.1 Adding CSS (Inline,Internal,External) 1.1.2 HTML Links and attribute.(\_self, \_blank, \_parent, \_top) 1.1.3 Absolute URL and Relative URL in <href> 1.1.4 <img> tag and its attributes (src, alt, style,width,height) 1.2 HTML forms : 1.2.1 form Elements and their attributes : 1.2.1.1 form (action, method, novalidate, autocomplete,target) 1.2.1.2 label, input (text, radio button, Checkboxes, submit/reset button) 1.2.1.3 select(id, name,), 1.2.1.4 textarea (name, rows, cols), 1.2.1.5 button(type, onclick) 1.2.1.6 datalist 1.2.2 Media : Video, Audio

**Unit 3.** Overview of Java Script 3.1 Overview of Client & Server-SideScripting 3.2 Structure of Java Script 3.3 Data types and Variables 3.4 Operators (Arithmetic, Assignment, Comparison, Logical and Conditional Operator) 3.5 Control Structure 3.5.1 If...Else, switch..case 3.5.2 While, Do...While, For Loop 3.5.3 break, continue 3.6 Java Script String and Events 3.6.1 Javascript Strings types 3.6.2 String functions: concat(), split(), indexOf(), lastIndexOf(),substring(), trim(), slice(), replace(), charAt() 3.6.3 Javascript Events : 3.6.3.1 Mouse Events : (click, mouseover, mouseremove, mouseout, mouseup) 3.6.3.2 keyboard Events : ( keyup,keydown) 3.6.3.3 Form Event : (focus, submit, blur, change)

**Unit-4:** JavaScript Objects : 4.1 Creating object : (By object literal, By creating instance of Object, By using an object constructor) 4.2 Date object : 4.2.1 Date constructor: Date(), Date(milliseconds), Date(dateString), Date(year, month, day, hours, minutes, seconds, milliseconds) 4.2.2 Date Methods: getDate(), getDay(),getMonth(), getHours(), setDate, setMonth(),setDay(), toString() 4.3 Document Object Model (DOM): 4.3.1 DOM concepts 4.3.2 DOM properties 4.3.3 DOM methods : write(), writeln(),getElementById(),getElementsByName()

**Unit-5:** JavaScript Functions: 5.1 JavaScript Functions: 5.1.1 Defining function (with and without parameters) 5.1.2 calling function 5.1.3 return statement 5.1.4 Page redirection 5.2 Dialog boxes : Alert, confirm, prompt 5.3 Form validation : 5.3.1 Basic validation (All form details are filled) 5.3.2 Data format validation (email, number, string, mobile number, name)

## 305-02: Mobile Application Development - 1

### **Unit-1: Concepts of Mobile computing.**

#### 1.1 Fundamentals of Mobile computing:

1.1.1 Concepts of fixed and wireless network

1.1.2 Introduction of Multiplexing, Modulation

1.1.3 Fundamentals of spectrum, Bluetooth technology 1.1.4 Concepts of Wireless Application Protocol(WAP)

1.1.5 Concepts of Mobile Agents.

#### 1.2 Introduction of Android

1.2.1 History, concepts and Features of Android

1.2.2 Concepts of API framework

1.3 Intro. of Android Architecture ( Software Stack)

1.3.1 kernel Native Libraries

1.3.2 Concepts of Native Libraries and Android Runtime(Dalvik VM)

1.3.3 Application Framework

1.3.4 Application

### **Unit-2: Setting up Android Environment:**

#### 2.1 Android Emulator

2.1.1 Setting up JDK and Android Studio

2.1.2 Android SDK manager

2.2 Creating Android Virtual Device (AVD)

2.3 Creating first App:

2.3.1 Activity

2.3.2 Layout

### **Unit-3: XML (Extensible Markup Language)**

3.1 Characteristic and Use of XML

3.2 XML syntax (Declaration, Tags, elements)

3.3 root element, case sensitivity

3.4 XML document:

3.4.1 Document Prolog Section

3.4.2 Document element section

3.5 XML declaration and rules of declaration.