BOARD OF SECONDARY EDUCATION, RAJASTHAN, AJMER
Syllabus for Board Examination-2022
Informatics Practices
CLASS XI
Code No. 04

ईकाई संख्या व नाम	अध्याय संख्या व नाम	शीर्षक एवं विषय वस्तु	अंक भार
Unit 1: Introduction to Computer System	Chapter 1 Computer System	Introduction to computers and computing: evolution of computing devices, components of a computer system and their interconnections, Input/Output devices. Computer Memory: Units of memory, types of memory – primary and secondary, data deletion, its recovery and related security concerns. 2 Software: purpose and types – system and application software, generic and specific purpose software.	5
Unit 2: Introduction to Python	Chapter 3 Brief Overview of Python, Chapter 4 Working with Lists and Dictionaries Chapter 5 Understanding Data	Basics of Python programming, Python interpreter - interactive and script mode, the structure of a program, indentation, identifiers, keywords, constants, variables, types of operators, precedence of operators, data types, mutable and immutable data types, statements, expressions, evaluation of expressions, comments, input and output statements, data type conversion, debugging, control statements: if-else, for loop Lists: list operations - creating, initializing, traversing and manipulating lists, list methods and built-in functions.: len(), list(), append(), extend(), insert(), count(), find(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum() Dictionary: concept of key-value pair, creating, initializing, traversing, updating and deleting elements, dictionary methods and built-in functions: len(), dict(), keys(), values(), items(), get(), update(), clear(), del()	25
Unit 3: Data Handling using NumPy	Chapter 6 Introduction to NumPy	Data and its purpose, importance of data, structured and unstructured data, data processing cycle, basic statistical methods for understanding data - mean, median, mode, standard deviation and variance. Introduction to NumPy library, NumPy arrays and their advantage, NumPy attributes, creation of NumPy arrays; from lists using np.array(), np.zeros(), np.ones(),np.arange() , indexing, slicing, and iteration; concatenating and splitting array; Arithmetic operations on one dimensional and two dimensional arrays. Calculating max, min, count, sum, mean, median, mode, standard deviation, variance on NumPy arrays.	15
Unit 4: Database concepts and the Structured Query Language	Chapter 7 Database Concepts Chapter 8 Introduction to Structured Query Language (SQL)	Database Concepts: Introduction to database concepts and its need, Database Management System. Relational data model: concept of attribute, domain, tuple, relation, candidate key, primary key, alternate key, foreign key. Structured Query Language: Data Definition Language, Data Query Language and Data Manipulation Language, Introduction to MySQL: Creating a database, using database, showing tables using MySQL, Data Types : char, varchar, int, float, date Data Definition Commands: CREATE, DROP, ALTER (Add and Remove primary key, attribute). Data Query Commands: SELECT-FROM-WHERE, LIKE, BETWEEN, IN, ORDER BY, using arithmetic, logical, relational operators and NULL values in queries, Distinct clause Data Manipulation Commands: INSERT, UPDATE, DELETE.	20

Unit 5: Introduction to the Emerging Trends	Chapter 2 Emerging Trends	Artificial Intelligence, Machine Learning, Natural Language Processing, Immersive experience (AR, VR), Robotics, Big data and its characteristics, Internet of Things (IoT), Sensors, Smart cities, Cloud Computing and Cloud Services (SaaS, IaaS, PaaS); Grid Computing, Block chain technology.	**5**

Practical

S.No.	Unit Name	Marks
1	Problem solving using Python programming language	8
2	Problem solving using NumPy	5
3	Creating database using MySQL and performing Queries	5
4	Practical file (minimum of 20 python programs , 5 Numpy programs and 20 SQL queries)	7
5	Viva-Voce	5
	Total	30