BOARD OF SECONDARY EDUCATION RAJASTHAN, AJMER
Syllabus for Board Examination- 2025
CLASS-11th
Sub. : Computer Science (03)

ईकाई संख्या व नाम	अध्याय संख्या व नाम	शीर्षक एवं विषय वस्तु	अंक भार
Unit I **Computer Systems and Organisation**	Chapter 1 : Computer System Chapter 2 : Encoding Schemes and Number System Chapter 3 : Emerging Trends	● Basic Computer Organisation: Introduction to computer system, hardware, software, input device, output device, CPU, memory (primary, cache and secondary), units of memory (Bit, Byte, KB, MB, GB, TB, PB) ● Types of software: system software (operating systems, system utilities, device drivers), programming tools and language translators (assembler, compiler & interpreter), application software ● Operating system (OS): functions of operating system, OS user interface ● Boolean logic: NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws and logic circuits ● Number system: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems. ● Encoding schemes: ASCII, ISCII and UNICODE (UTF8, UTF32) ● Emerging trends: Cloud computing, cloud services (SaaS, IaaS, PaaS), blockchains, Artificial Intelligence (AI), Machine Learning (ML), Internet of Things (IoT	10
Unit II: Computational Thinking and Programming–1	Chapter 4 : Introduction to Problem Solving Chapter 5 : Getting Started with Python Chapter 6 : Flow of Control Chapter 7 : Functions Chapter 8 :	● Introduction to problem solving: Steps for problem solving (analysing the problem, developing an algorithm, coding, testing and debugging). representation of algorithms using flow chart and pseudo code, decomposition ● Familiarization with the basics of Python programming: Introduction to Python, features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode, Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments ● Knowledge of data types: number (integer, floating point, complex), boolean, sequence (string, list, tuple), none, mapping (dictionary),	45

	Strings Chapter 9 : Lists Chapter 10 : Tuples and Dictionaries	mutable and immutable data types ● Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators (is, is not), membership operators (in, not in) ● Expressions, statement, type conversion & input/output: precedence of operators, expression, evaluation of expression, python statement, type conversion (explicit & implicit conversion), accepting data as input from the console and displaying output ● Errors: syntax errors, logical errors, runtime errors ● Flow of control: introduction, use of indentation, sequential flow, conditional and iterative flow control ● Conditional statements: if, if-else, if-elif-else, flowcharts, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number ● Iterative statements: for loop, range function, while loop, flowcharts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number etc ● Strings: introduction, indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, built-in functions: len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(), rstrip(), strip(), replace(), join(), partition(), split() ● Lists: introduction, indexing, list operations (concatenation, repetition, membership & slicing), traversing a list using loops, built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, suggested programs: finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list ● Tuples: introduction, indexing, tuple operations (concatenation, repetition, membership & slicing), built-in functions: len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple, suggested programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of elements in a tuple ● Dictionary: introduction, accessing items in a dictionary using keys, mutability of dictionary (adding a new item, modifying an existing	

		item), traversing a dictionary, built-in functions: len(), dict(), keys(), values(), items(), get(), update(), del(), clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted(), copy(); suggested programs : count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them ● Sorting techniques: Bubble and Insertion sort ● Introduction to Python modules: Importing module using 'import ' and using from statement, Importing math module (pi, e, sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median, mode)	
Unit III: Society, Law and Ethics	Chapter 11 : Societal Impac	● Digital Footprints ● Digital society and Netizen: net etiquettes, communication etiquettes, social media etiquettes ● Data protection: Intellectual Property Right (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open source software's and licensing (Creative Commons, GPL and Apache) ● Cyber-crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, preventing cyber crime ● Cyber safety: safely browsing the web, identity protection, confidentiality, cyber trolls and bullying. ● Safely accessing web sites: malware, viruses, trojans, adware ● E-waste management: proper disposal of used electronic gadgets ● Indian Information Technology Act (IT Act) ● Technology & Society: Gender and disability issues while teaching and using computers	15

Practical

S.No.	Unit Name	Marks
1	**Lab Test:** Python program (60% logic + 20% documentation + 20% code quality)	12
2	Report file: Minimum 20 Python programs	7
	Viva	3
3	Project (that uses most of the concepts that have been learnt) (See CS-XII for the rules regarding the projects)	8
	Total	**30**