

**Computer Science( XI)**

**Code No. (083)**

**Session – 2021-22**

**Annual Examination March/April, 2022**

**Max Marks -35**

Units	Unit Name	Sub-Topics	Marks
II	Computational Thinking and Programming -1	<ul style="list-style-type: none"><li>• *Conditional Statements</li><li>• *Iterative Statements</li><li>• *Strings-Built-in functions</li><li>• List</li><li>• Tuples</li><li>• Dictionary</li><li>• Python Modules</li></ul>	07  20  27
III	Society Law and Ethics	<ul style="list-style-type: none"><li>• Digital Footprints</li><li>• Digital society and Netizen</li><li>• Data protection</li><li>• Cyber-crime</li><li>• Cyber safety</li><li>• Safely accessing web sites</li><li>• E-waste management</li><li>• Indian Information Technology Act (IT Act)</li><li>• Technology &amp; Society</li></ul>	8
		<b>Total</b>	<b>35</b>

\* Topics from Term –I

## **Unit II: Computational Thinking and Programming – 1**

- \*Conditional statements: if, if-else, if-elif-else, flowcharts, simple programs: eg.: 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.
- \* 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
- Introduction to Python modules: Importing module using 'import <module>' 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**

- 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 softwares 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