WEST BENGAL COUNCIL OF HIGHER SECONDARY EDUCATION

SUBJECT: COMPUTER SCIENCE (COMS)

CLASS – XII **SEMESTER – III** **FULL MARKS: 35**

Unit 1	Python Programming 25 Marks	80 Hrs
	▯ 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.	2
	▯ Knowledge of data types ▯ Number(integer, floating point,complex), boolean, sequence(string, list, tuple), None, Mapping(dictionary), mutable and immutable data types.	1
	▯ Operators ▯ Arithmetic operators, relational operators, logical operators, assignment operators, augmented assignment operators, identity operators (is, is not), membership operators (in not in).	2
	▯ Expressions, statement, type conversion, and input/output ▯ Precedence of operators, expression, evaluation of an expression, type-conversion (explicit and implicit conversion), accepting data as input from the console and displaying output.	3
	▯ Errors: Syntax errors, logical errors, and run-time errors.	2
	▯ Flow of Control ▯ Introduction, use of indentation, sequential flow, conditional and iterative flow.	4
	▯ Conditional statements ▯ if, if-else, if-elif-else, flowcharts, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number.	5
	▯ Iterative Statement ▯ For loop, range(), while loop, flowcharts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number, etc.	7
	▯ Strings ▯ Introduction, string operations (concatenation, repetition, membership and slicing), traversing a string using loops, built-in functions/methods–len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(),lstrip(), rstrip(), strip(), replace(), join(), partition(), split().	10

	▯ Lists ▯ Introduction, indexing, list operations (concatenation, repetition, membership and slicing), traversing a list using loops, built-in functions/methods–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.	10
	▯ Tuples ▯ Introduction, indexing, tuple operations (concatenation, repetition, membership and slicing); built-in functions/methods – len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple.	5
	▯ Dictionary ▯ Introduction, accessing items in a dictionary using keys, mutability of a dictionary (adding a new term, modifying an existing item), traversing a dictionary, built-in functions/methods – len(), dict(), keys(), values(), items(), get(), update(), del(), del, clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), sorted().	5
	▯ 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()).	10
	▯ Functions ▯ Types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope).	7
	▯ Exception Handling ▯ Introduction, handling exceptions using try-except-finally blocks.	7
Unit 2	E-Commerce 10 Marks	20 Hrs
	An introduction to Electronic Commerce • What is E-Commerce (Introduction And Definition), Main activities E-Commerce, Goals of E-Commerce, Technical Components of E- Commerce, Functions of E-Commerce, Advantages and disadvantages of E-Commerce, Scope of E-Commerce, Electronic Commerce Applications, Electronic Commerce and Electronic Business (C2C, C2G,G2G, B2G, B2P, B2A, P2P, B2A, C2A, B2B, B2C). • Internet, Intranet & Extranet, Role of Internet in B2B Application, Web promotion, Banner, Exchange, Shopping Bots.	8

	Electronic Data Exchange Introduction, Concepts of EDI and Limitation, Applications of EDI, Disadvantages of EDI, EDI model.	4
	Electronic Payment System Introduction, Types of Electronic Payment System, Payment Types, Value Exchange System, Credit Card System, Electronic Fund Transfer, Paperless bill, Modern Payment Cash, Electronic Cash.	4
	Internet Marketing The PROS and CONS of online shopping, The cons of online shopping, Justify an Internet business, Internet marketing techniques, The E- cycle of Internet marketing, Personalization e-commerce.	4