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SUMITA ARORA

a text book for class XI



As per the
reduced syllabus,
2020-2021

DHANPAT RAI & Co.

Syllabus

Distribution of Marks

Unit No.	Unit Name	Marks	Periods	
		Theory	Theory	Practicals
1.	Introduction to Computer System	10	10	-
2.	Introduction to Python	25	35	28
3.	Database concepts and the SQL	30	23	17
4.	Introduction to Emerging Trends	5	7	-
	Total	70	75	45

Unit 1 : Introduction to Computer System

- ◇ Introduction to computer 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.
- ◇ Software : purpose and types – system and application software, generic and specific purpose software.

Unit 2 : Introduction to Python

- ◇ 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 and 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.
- ◇ Dictionary : concept of key-value pair, creating, initializing, traversing, updating and deleting elements, dictionary methods and built-in functions.

Unit 3 : Database Concepts and the Structured Query Language

- ◇ Database Concepts : Introduction to database concepts and its need, Database Management System.
- ◇ Relational data model : Concept of domain, tuple, relation, candidate key, primary key, alternate key, foreign key.
- ◇ Advantages of using Structured Query Language, Data Definition Language, Data Query Language and Data Manipulation Language, Introduction to MySQL, Creating a database using MySQL, Data Types.
- ◇ Data Definition : CREATE TABLE.
- ◇ Data Query : SELECT, FROM, WHERE.
- ◇ Data Manipulation : INSERT.

Unit 4 : Introduction to the 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.

PRACTICAL

Unit No.	Description
1.	Problem solving using Python programming language
2.	Creating database using MySQL and performing Queries
3.	Practical file (Minimum of 14 Python Programs, and 14 SQL Queries)
4.	Viva-Voce
	Marks
	11
	7
	7
	5
	5
	Total
	30

Programming in Python

1. To find average and grade for given marks.
2. To find sale price of an item with given cost and discount (%).
3. To calculate perimeter/circumference and area of shapes such as triangle, rectangle, square and circle.
4. To calculate Simple and Compound interest.
5. To calculate profit-loss for given Cost and Sell Price.
6. To calculate EMI for Amount, Period and Interest.
7. To calculate tax - GST/Income Tax.
8. To find the largest and smallest numbers in a list.
9. To find the third largest/smallest number in a list.
10. To find the sum of squares of the first 100 natural numbers.
11. To print the first 'n' multiples of given number.
12. Create a dictionary to store names of states and their capitals.
13. Create a dictionary of students to store names and marks obtained in 5 subjects.
14. To print the highest and lowest values in the dictionary.

Data Management : SQL Commands

15. To create a database
16. To create student table with the student id, class, section, gender, name, dob, and marks as attributes where the student id is the primary key.
17. To insert the details of at least 10 student in the above table.
18. To display the entire content of table.
19. To display Rno, Name and Marks of those students who are scoring marks more than 50.
20. To find the average of marks from the student table.
21. To find the number of students, who are from section 'A'.
22. To display the information all the students, whose name starts with 'AN' (Examples: ANAND, ANGAD,...)
23. To display Rno, Name, DOB of those students who are born between '2005-01-01' and '2005-12-31'.
24. To display Rno, Name, DOB, Marks, Email of those male students in ascending order of their names.
25. To display Rno, Gender, Name, DOB, Marks, Email in descending order of their marks.
26. To display the unique section available in the table.

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Answers to Objective Type Questions (OTQs) (i) – (iv)