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**Question Paper Code : 30198**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

First Semester

GE 3151 – PROBLEM SOLVING AND PYTHON PROGRAMMING

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(Common to ALL Branches)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the qualities of a good algorithm.
2. Enumerate the strategies involved in developing algorithm.
3. What are the rules for writing an identifier?
4. Mention the types of arguments in python.
5. Compare return value and composition.
6. Define string immutability.
7. Define cloning in list.
8. What is the benefit of using tuple assignment in python?
9. How do you delete a file in Python?
10. How do you use command line arguments to give input to the program?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Briefly describe iteration and recursion. Illustrate with an example. (8)  
(ii) Write an algorithm and give the flowchart to find the net salary of an employee. (8)

Or

- (b) (i) Compare machine language, assembly language and high-level language. (8)
- (ii) Write the pseudocode for the following : (8)
- (1) Find maximum in a list
- (2) Towers of Hanoi.
12. (a) (i) List down the rules for naming the variable with examples. (8)
- (ii) Write a Python program to swap two variables. (8)
- Or
- (b) (i) What is precedence? List out the order of precedence and demonstrate in detail with example. (8)
- (ii) Write a Python program to check whether a given year is a leap year or not. (8)
13. (a) (i) Explain string module. (8)
- (ii) Write a program to find the sum and average of array of numbers. (8)
- Or
- (b) Write a program to perform search operation which sequentially checks each element of the list until a match is found or the whole list has been searched? (16)
14. (a) Explain in detail about lists, list operations and list slices. (16)
- Or
- (b) Write a program to generate electricity bill based upon the no. of units consumed. Refer the table below for unit and price details. (16)
- | No. of units consumed  | Price (Domestic) | Price (Commercial) |
|------------------------|------------------|--------------------|
| 1. Upto 200 units      | 200 (Base price) | 500                |
| 2. Units >200 and <500 | 1100             | 1700               |
| 3. Units >500 <1000    | 4500             | 7000               |
- Note : Program should read information from the user. Whether it is for domestic or commercial purpose.
15. (a) (i) Write a function that copies a file reading and writing upto 50 characters at a time. (8)
- (ii) Write a python program to count number of lines, words and characters in a text file. (8)
- Or
- (b) Write a Python program to implement stack operations using modules. (16)