



Programme	: B.Tech	Semester	: Fall Semester 2023-24
Course Title/ Course Code	: Introduction to Problem Solving and Programming/ CSE1021	Slot	: D11+D12+B14
Time	: 3 Hrs.	Max. Marks	: 100

Q. No.	Question Description	Marks
PART A – (60 Marks)		

- 1 (a) Design the algorithm and pseudo code to advise the user student as to which course 12
he/she is eligible for admission on the basis of marks/grades in the following courses:

Full Time Courses	Minimum Grades
Science, Mathematics, Economics	A (or marks 80% and above)
Social Sciences	B (or marks 65% and above)
Languages	C (or marks 50% and above)

Also, draw the flow chart of your algorithm.

OR

- (b) Design an algorithm to check the given number is prime number or not. 12
- a) Draw flow chart.
- b) Count the operations required to compute your algorithm.

- 2 (a) Code a python program for list manipulation 12
- a) To add new elements to the end of the list
 - b) To reverse elements in the list
 - c) To display same list elements multiple times
 - d) To sort the elements in the list in ascending order.

OR

- ✓ (b) Discuss the various operations that can be performed on a tuple and dictionary with 12 real time case study.

- 3 (a) What motivates programmers to use the iteration statements (loops) in Python? You 12
might give an example to support your answer.

OR

2. (b) Write a python program to test whether the given year is leap year or not, also justify meaning of each line in the form of comments. 12

- 4 (a) Design a function in python that calculates the factorial of a number recursively. 12
Implement scoping rules to handle variable scope inside and outside the function.

OR

✓ (b) Create a tuple for the following data item:

t1=("Ram", 101, "B.Tech", "CSE-1021", "Python", "CSE")

i) Change the name to "Shyam" if possible, otherwise mentions the error.

ii) Write a command to concatenate another tuple

t2=("Mohan", 102, "B.Tech", "CSE-1021", "Java", "CSE"), display concatenated result

5 ✓ (a) Implement a program that removes any repeated items from a list so that each item appears at most once. For instance, the list [2, 2, 7, 3, 5, 3, 9, 9] would become [2, 7, 3, 5, 9]. 12

OR

(b) Implement a python code to find the maximum number in a set. Also explain different sets operation. 12

PART B – (40 Marks)

✓ 6 "What is the concept of an algorithm, and what purpose does it serve? Explore the significance of algorithms and clarify the key characteristics that define a well-designed algorithm". 8

✓ 7 Explain in detail about the various operators used in python with suitable example. Also explain about loop control statement(break, continue, pass) 8

✓ 8 "Develop a program, featuring a custom function that takes two user-defined numbers as parameters. If the first number is smaller than the second, swap the numbers and return them, with the second number in the place of the first and the first number in place of the second. If the first number is equal to or greater than the second, return the numbers in their original order." 8

✓ 9 Make a function named as square (num), and find out the square by calling this function. 8

✓ 10 Implement a python code for the below flow chart. Also write down the algorithm for that. 8

