

Register No: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER INTEGRATED M.C.A DEGREE EXAMINATION (S), MAY 2022

(2020 SCHEME)

Course Code: 20IMCAT105

Course Name: Introduction to Programming

Max. Marks: 60

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

1. Discuss on system flowchart. Write any two differences between system flowchart and program flowchart.
2. Which are the parts of a computer?
3. Differentiate constants and variables with suitable examples.
4. Define algorithm. Write an algorithm to perform addition operation.
5. Design an algorithm to swap two numbers without using a third variable.
6. Differentiate if-else and nested else-if statements.
7. Draw a flowchart to generate first n Fibonacci terms 0,1,1,2,3,5...n (n>2).
8. Write an algorithm to print the sum of first n natural numbers and its squares using Repeat until loop.
9. Design an algorithm to print the sum and average of the elements in a one-dimensional array.
10. Write an algorithm to add two arrays.

PART B

(Answer one full question from each module, each question carries 6 marks)

MODULE I

11. a) Compare and contrast data and information. (3)
b) Explain the different symbols used in flowcharts. (3)

OR

12. Write an algorithm and prepare a flowchart showing the process of cash withdrawal from ATM using Debit cards. Assume that transactions other than cash withdrawals are not allowed. (6)

MODULE II

13. Detail on different types of operators used in programming. (6)

OR

14. a) Write an algorithm to determine whether a parallelogram is a square or a rectangle, given its sides. (3)
b) Write the properties of a good algorithm? (3)

MODULE III

15. a) Write in detail the decision structures used in an algorithm. (4)
b) Write an algorithm to find the factorial of a number. (2)

OR

16. a) Draw a flowchart to log in to Facebook account. (2)
b) Construct a flowchart which depicts the reverse of a number. (4)

MODULE IV

17. a) Design an algorithm to accept a natural number n , as its input and prints the result of $S = \frac{1}{2} + \frac{1}{4} + \dots + \frac{1}{n}$. (4)
b) Differentiate repeat until and while loops. (2)

OR

18. Write short notes on for loop and nested loops. (6)

MODULE V

19. Write an algorithm and draw a flowchart to store numbers given by users in a one-dimensional array and display the largest and second largest number in the array. (6)

OR

20. Design an algorithm to perform linear search in an array. (6)
