



বিদ্যাসাগর বিশ্ববিদ্যালয়

**VIDYASAGAR UNIVERSITY**

**B.Sc. Honours Examination 2021**

(CBCS)

**4th Semester**

**COMPUTER SCIENCE**

**PAPER—GE4T & GE4P**

*Full Marks : 60*

*Time : 3 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GE4T : PROGRAMMING IN PYTHON**

**Group – A**

Answer any *two* questions.

2×15

1. How to set the python path using command prompt? How to concatenate two strings from python shell? Write the five functionalities of python calculator. Create a list and display last three numbers from the list in python. 4+2+5+4

2. Explain the for loop in python. What is the role of range() function in python? With the help of a user defined function display all Fibonacci numbers up to 100 in python?
3. How to create a stack and perform push and pop on it in python? Create a matrix of 4 rows and 5 columns and find the transpose of it. What is the function of del statement? 6+6+3
4. What is the difference between set and dictionary? What is package and how to use a package in python? Create a file and write some contents to the file. 5+5+5

**Group – B**

Answer any *one* question. 1×10

5. How runtime errors are handled in python? How to define a class in python and then create object of that class? 5+5
6. Write short notes on: 4×2.5
  - (a) Dictionaries,
  - (b) Sequences,
  - (c) List,
  - (d) increment-decrement operator.

**PRACTICAL : GE4P**

Answer any *one* question. 1×20

1. Write a function in Python to check whether an input number is prime or not.
2. Write a program to generate a Fibonacci series of a given number.
3. Write a program to sort a list using bubble sort.

## **GE4T : PROGRAMMING IN VB/GAMBAS**

### **Group – A**

Answer any *two* questions. 2×15

1. What is array? What are the various types of arrays in VB? What are the use of preserve and redim statements in arrays? Give syntax and example of if-else block. 2+5+4+4
2. Explain the various objects of ADO data control. Discuss string handling inbuilt functions: insert and mid with suitable example. 10+5
3. Discuss the working and syntax of Do loop, While loop and For loop. 5+5+5
4. Explain the properties, events and methods associated with Button, List Box, and Combo Box in VB. 5+5+5

### **Group – B**

Answer any *one* question. 1×10

5. What do you mean by procedure? Differentiate between subroutine and function with the help of a suitable example.
6. Why COM components are used? How object-oriented approaches are used in Visual Basic?

### **PRACTICAL : GE4P**

Answer any *one* question. 1×20

1. Write a program in VB/GAMBAS to read n numbers and count the number of negative numbers, positive numbers and zeros in the list.

2. Write a program in VB/GAMBAS to read a single dimension array of integers and find the sum and average of these numbers.
3. Using VB/GAMBAS, create a simple calculator which is able to perform basic operations like addition, subtraction, multiplication and division.

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## **GE4T : INFORMATION SECURITY AND CYBER LAWS**

### **Group - A**

Answer any *two* questions. 2×15

1. Briefly explain the nature and modus operandi of cyber crime. Explain the various forms of cyber crime and its investigation related issues. 5+5+5
2. Explain the process of fraud detection through digit analysis. Cyber crime is a threat to a person, organization and the government – Discuss. 6+9
3. What are the various models of and approaches to security in data transmission? Write a short note on information technology governance. 8+7
4. Write short note (any *three*) : 3×5
  - (a) Caesar Cipher,
  - (b) Rail-Fence Cipher,
  - (c) Public key cryptography,
  - (d) Firewalls,
  - (e) Computer forensics,
  - (f) Ethics of hacking and cracking.

**Group – B**

Answer any *one* question.

1×10

5. Briefly explain the types of frauds (Internal *vs.* External). Explain the different types of credit card frauds. 5+5
6. What are the problems in investigating cybercrimes? Suggest some measures to overcome such problems in investigation. Explain the security issues in the internet protocols and structures. 3+3+4

**PRACTICAL : GE4P**

Answer any *one* question.

1×20

1. Perform encryption and decryption of Caesar cipher. Write a script for performing these operations.
2. Perform encryption and decryption of a Rail fence cipher. Write a script for performing these operations.
3. Demonstrate use of GPG utility for signing and encrypting purposes.

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