

**Bachelor of Science (B.Sc.) Semester—I Examination**  
**COMPUTER SCIENCE**  
**(Programming in "C")**  
**Optional Paper—1**

Time : Three Hours]

[Maximum Marks : 50

- N.B. :—** (1) All questions are compulsory and carry equal marks.  
 (2) Illustrate your answer with suitable diagrams wherever necessary.

**EITHER**

1. (a) Explain :
- (i) Sequence logic
  - (ii) Selection logic
  - (iii) Iteration logic
  - (iv) Modular logic. 5
- (b) Write an algorithm to interchange the values of two variables without using temporary variable. 5

**OR**

- (c) Define algorithm. Write its (i) characteristics (ii) advantages. 5
- (d) Draw a flowchart to find smallest of three numbers. 5

**EITHER**

2. (a) Explain different datatypes in C with example. 5
- (b) Write a program in C to check whether the number entered is prime or not. 5

**OR**

- (c) Explain the following operators in C :
  - (i) Bitwise operators
  - (ii) Conditional operators. 5
- (d) Write a program in C to reverse the digits of a number. 5

**EITHER**

3. (a) Explain the following string functions :
- (i) strcmp()
  - (ii) strstr()
  - (iii) strcpy()
  - (iv) strcmp()
  - (v) strlen(). 5
- (b) Write a program using a recursive function to find the factorial of a number. 5

**OR**

- (c) List the different storage classes in C. Explain each in brief. 5
- (d) Write a program in C to find the largest element in one dimensional array. 5

**EITHER**

4. (a) Write a structure "Student" containing the following variables :

- (i) Rollno
- (ii) Name
- (iii) Subject
- (iv) Marks

Use suitable data and size for each of the above variables. Also create the variables S1, S2 and S3 for the structure student. 5

(b) Explain errors in file handling. 3

**OR**

(a) What is a pointer ? Explain void pointer with suitable example. 5

(d) Explain the various file opening modes in C. 5

5. (a) Write the advantages and limitations of flowchart. 2½

(b) Differentiate between for loop and while loop. 2½

(c) Explain actual and formal arguments with example. 2½

(d) Differentiate between structure and union. 2½