

UNIT – IV

8. (a) Solve the following equations by Crout's method :

$$2x_1 + 3x_2 + x_3 = -1, 5x_1 + x_2 + x_3 = 9, 3x_1 + 2x_2 + 4x_3 = 11$$

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- (b) Explain the procedure to solve algebraic equations by Triangularization method. 3

9. Solve the following equations by Jacobi's method : 9

$$27x + 6y - z = 85, 6x + 15y + 2z = 72, x + y + 54z = 110$$

Roll No.

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**B. Sc. (Hons.) Mathematics 4th Semester
Examination – May, 2019**

PROGRAMMING IN C AND NUMERICAL METHODS

Paper : BHM-243

Time : Three hours] / Maximum Marks : 45

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is *compulsory*. Attempt *five* questions in all taking at least *one* question from each Unit. All questions carry equal marks.

1. (a) What is difference between algorithm and flowchart ? $1.5 \times 6 = 9$
- (b) What is preprocessor ? What is its importance ?
- (c) What are the arithmetic operations that can be performed on characters ?

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- (d) What are the advantages of pointers ?
- (e) What is order of convergence ?
- (f) What is the difference between Gauss-Seidal and relaxation method ?

UNIT - I

- 2. (a) What is an output function ? Explain various output functions used in C language by giving suitable examples. 5
- (b) What is an expression ? Explain various types of expressions by giving examples. 4
- 3. (a) Explain the programmer's model of computer with the help of diagram. 5
- (b) What is algorithm ? What are its advantages ? Write an algorithm to determine whether the given number is odd or even ? 4

UNIT - II

- 4. (a) What is a Function ? What are its merits and demerits ? 4

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- (b) What is an Array ? Write a program in C to create an array of 100 integers.
- 5. (a) Explain Switch-Case control structure by giving suitable C program example.
- (b) Explain FOR loop statement by giving C program example.

UNIT - III

- 6. (a) What is a pointer ? How it is related with array ? Give example.
- (b) Find the real root of the equation $x^3 - 9x + 1 = 0$ by Regula-Falsi Method.
- 7. (a) What is structure ? How it is declared and used ? Give example.
- (b) Find the real root of the equation $x^2 - 5x + 2 = 0$ by Newton-Raphson's Method.

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