~~41123~~

B.A. (Mathematics) 4th Semester
(Regular/Re-appear/Imp.)
Examination 2022

PROGRAMMING IN C AND NUMERICAL METHODS
PAPER : BAM - 403

Time : 3 Hours   **Max. Marks : 20**

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 : Last section is **Compulsory**. Attempt any **five** questions taking at least one question from each section.

Section - I

1. (a) Draw a flow chart to check whether a number is prime or not.

   (b) Define data types. What are the various data types used in C language and write its usage?

2. (a) Write an algorithm to find the area of a circle with radius r.

   (b) Explain programmer's model of a computer.

Section - II

3. (a) Explain nested if statement with example.

   (b) Explain with examples the syntax of scanf() and printf() function.

4. (a) Differentiate between while and do-while loop. https://www.iguonline.com

   (b) Explain global and local variables in C language.

Section - III

5. (a) Write a program that reads a text and counts all occurrences of a particular word.

   (b) What are pointers? Why are they needed? Explain with example.

6. (a) Find a real root of the equation by bisection method correct to the three decimal places.

   (b) Find the order of convergence of Newton Raphson Method.

Section - IV

(7.) (a) Apply the Gauss-Jordon method to solve the equation.

(b) Using LU decomposition method to solve the equations.

(8.) (a) Apply the Jacobi iteration method to solve the equations.

(b) Apply the Gauss Seidel method to solve the equation.

Section - V

9. (a) Define input and output devices.

(b) Explain the importance of C language.

(c) Define the syntax of if-else statement.

(d) Derive Secant method.

(e) Derive Newton-Raphson iterative formula for finding the square root.

(f) Define transcendental equations.

■◨☐

Ans Jordon

$$2x - 3y + z = -1$$
$$x + 4y + 5z = 25$$
$$3x - 4y + z = 2$$

Ans 7 (b) $$3x + 8y \pm 7z = 4$$
$$2x + 3y + z = 5$$
$$3x + 4y + z = 7$$

Ans 8 (a) $$20x + y - 2z = 17$$
$$3x + 20y - z = -18$$
$$2x - 3y + 20z = 25$$

Ans 8 (b) $$5x + y + 2z = 14$$
$$x + 4y - 2z = -2$$
$$2x + 3y + 8z = 39$$