

M.Sc.(Maths.) Semester - 3 (CBCS) Examination
Oct/Nov-2021 (NEW COURSE)
Prog. In C & Numerical Methods (Core (New))

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

- Q.1** (a) Explain C tokens. **4**
- Q.1** (b) Answer any two questions out of three. **10**
- (1) Explain assignment operator and arithmetic operators.
 - (2) Explain *printf()* function with example.
 - (3) Explain data types with example: (i) *int* (ii) *float*.
- Q.2** (a) Explain *goto* statement with example. **4**
- Q.2** (b) Answer any two questions out of three. **10**
- (1) Write a C program to obtain sum of first 20 natural numbers.
 - (2) Explain various forms of *if* statement.
 - (3) Differentiate *while* and *do...while* loop.
- Q.3** (a) How to define a structure? Explain with example. **4**
- Q.3** (b) Answer any two questions out of three. **10**
- (1) Write a C program to input name and total marks of five students and display it.
 - (2) Explain user defined function with return value and without return value.
 - (3) Explain any three file management functions of C.
- Q.4** (a) Explain false position method to solve $f(x) = 0$ for x . **4**
- Q.4** (b) Answer any two questions out of three. **10**
- (1) Estimate $\sqrt{12}$ using secant method.
 - (2) Find real root of the equation $2x^3 - 2x - 5 = 0$ using bisection method.
 - (3) Explain Newton-Raphson iterative method.
- Q.5** (a) Explain Gauss elimination method. **4**
- Q.5** (b) Answer any two questions out of three. **10**
- (1) Solve the system of equations using Gauss-Siedel iteration method: $16x + 3y = 11$; $7x - 11y = 13$. (Apply four iterations)
 - (2) Find $y(10)$ using Lagrange's interpolation formula:
- | | | | | |
|---|----|----|----|----|
| x | 5 | 6 | 9 | 11 |
| y | 12 | 13 | 14 | 16 |
- (3) Explain Newton's backward difference table.
