

Subjective Part

Note:

Attempt any three questions. All questions carry equal marks.

- Q No 3: (a) Draw a flow chart to find a factorial of a number (05)
 (b) Write an algorithm to find area of a triangle of sides a,b,c. (05)
 (c) Write a computer program to solve a system of equations using Jacobi's method

$$\begin{aligned} x - 2y + z &= -4 \\ 3x + 2y - z &= 8 \\ -x + 3y + 5z &= 0 \end{aligned}$$
 (10)

Q No.4: (a) Write a program in FORTRAN 90 to evaluate $\int_{-1}^{-1} \frac{1}{(1+x^2)} dx$, by using Simpson's rule. (10)

(b) Write a FORTRAN programme to find the determinant of a matrix ? (05)

(c) Write a flow chart to see if a number 'n' is negative, positive or zero (05)

Q No.5: (a) Write a program in FORTRAN 90 to find the real roots of

$$f(x) = 2x^3 + x - 3$$

By using method of false position. (10)

(b) Write a programme in FORTRAN to find the inverse of a matrix . (10)

Q No.6: (a) Write a program in 'FORTRAN 90' to find the positive real roots of the equation $e^{3x} + \frac{x}{3} - 5 = 0$, By using Newton Raphson method, correct up to 2 decimal places . (10)

(b) Write a FORTRAN programme to find the Area and Circumference of Circle. (10)

Q No.7: (a) Write a computer program in 'FORTRAN 90' to solve ODE $y' = (1 + y^2)x$, $y(0) = 1$ by taking $h = 0.2$ using R K method of order four. (10)

(b) Write a programme to arrange an Array in descending order. (05)

(c) Construct an algorithm to find the root of the Quadratic equation. (05)