

SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No:

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Total number of pages:[2]

Total number of questions:06

ME5th Sem

Numerical Method in Engg.

(RP)

Subject Code:ME-309

Paper ID: M118 (for office use)
(2010 batch)

Time allowed: 3 Hrs

Max Marks:60

To be specified by paper setter

Important Instructions:

- All questions are compulsory
- Assume any missing data
- Additional instructions, if any

PART A (2×10)

Q. 1. Short-Answer Questions:

- Define rate of convergence?
- Explain briefly the method of false position method to find root of the equation.
- Write the formula of Taylors Series method.
- If $f(0)=8$, $f(1)=68$ and $f(5)=123$, construct a divided differences table.
- Define Curve Fitting?
- Write Newtowns-Cote's quadrature formula.
- Write the formula of Tangent's method.
- What is difference between Gauss-Siedal and Jacobi Iterative method?
- Write the normal equation of Straight line.
- Check whether $1.01x + 2y = 2.01$, $x+2y=2$ is conditioned or not?

PART B (5×4)

Q. 2. Find the real root of the equation $x^3 - 11 = 0$ by Secant method.Q. 3. Evaluate $\int_0^6 \frac{1}{x^2+1}$ by Trapezoidal Rule take $n=6$ Q. 4. Find the maximum value of $F(x)$ using following table:

X	-1	1	2	3
F(x)	21	10	6	2

Q. 5. Solve the initial value problem $\frac{dy}{dx} = x + y$; $y(0)=1$ for $x=0.1$ by Euler's method.

- Q. 6. Solve the system of equation by Gauss-Elimination method
 $2x+y+z=10$, $3x+2y+3z=18$ and $x+4y+9z=16$

PART C (10×2)

- Q.7. Solve $x^3-3x-1=0$ by Newtown's -Raphson's Method.
- Q.8. Prove that rate of convergence of Regular falsi method is of linear order.
- Q.9. Solve the initial value problem $\frac{dy}{dx} = x^2 + y^2$; $y(0)=1$ for $x=0.1$ by Runge-Ku method of 4th order.