

Agnihotri Engg. & GATE Classes

Scripting success stories

SOLUTION OF ALGEBRAIC, TRANSCEDENTAL & SIMULTANEOUS EQUATION

Q.1) Solve following by Bisection method (Balzano method)?

- a) Find a real root of the equation $f(x) = x^3 - 2x - 5 = 0$ in 5 stages? (Ans.= 2.09375 or 2.094)
- b) Find a real root of the equation $f(x) = x^3 - 4x - 9 = 0$ in 4 stages? (Ans.= 2.6875)
- c) Find a real root of $x^3 - x - 1 = 0$ in 5 stages? (Ans.=1.34375)

Q.2) Solve the following by Regula Falsi method (False position method)?

- a) Find a real root of $x^3 - 9x + 1 = 0$ correct upto 4 decimal places? (Ans.2.9428)
- b) Find the real root of the equation $x \log x - 1.2 = 0$ correct upto 4 decimal places? (Ans.2.7406)
- c) Find a real root of $x^3 - 4x + 1 = 0$ correct upto 3 decimal places? (Ans.=1.861)
- d) Solve $3x - \cos x - 1 = 0$ correct upto 4 decimal places? (Ans.=0.6071)

Q.3) Solve the following by secant method?

- a) Determine the root of the equation $\cos x = x \cdot e^x$ (Ans.=0.5177)
- b) Find a real root of $x^3 - 2x - 5 = 0$ correct upto 3 decimal places? (Ans.=2.094)

Q.4) Solve the following by Newton Raphson method (N-R Method)?

- a) Find a real root of $x^3 - 2x - 5 = 0$ correct upto 5 decimal places? (Ans.=2.09455)
- b) Find a real root of $x^3 - 3x + 1 = 0$ correct upto 3 decimal places? (Ans =0.347)
- c) Find a real root of $x^4 - x - 10 = 0$ correct upto 3 decimal places? (Ans.=1.856)
- d) Find the cube-root of 15 correct upto 5 significant figure (Ans.=2.4662)
- e) Find the cube-root of 48 correct upto 3 decimal places? (Ans.=3.634)

Q.5) Solve the following system of simultaneous linear equation by Gauss Elimination Method?

a) $2x + 4y + z = 3$
 $3x + 2y - 2z = -2$
 $x - y + z = 6$ (Ans. = ; $x = 2, y = -1, z = 3$)

b) $10x + y + 2z = 13$
 $3x + 10y + z = 14$
 $2x + 3y + 10z = 15$ (Ans. = ; $x = 1, y = 1, z = 1$)

Q.6) Solve the following by gauss Jordan method ?

a) $x + y + z = 9$
 $2x - 3y + 4z = 13$
 $3x + 4y + 5z = 40$ (Ans. = ; $x = 1$, $y = 3$, $z = 5$)

b) $x + 2y + z = 8$
 $2x + 3y + 4z = 20$
 $4x + 3y + 4z = 16$ (Ans. = ; $x = -2$, $y = 3.2$, $z = 3.6$)

c) $2x - 6y + 8z = 24$
 $5x + 4y - 3z = 2$
 $3x + y + 2z = 16$ (Ans. = ; $x = 1$, $y = 3$, $z = 5$)

Q.7) Solve the following simultaneous equation by applying Gauss seidal method upto 3 decimal places ?

a) $10x + 2y + z = 9$
 $2x + 20y - 2z = -44$
 $2x + 3y + 10z = 22$ (Ans. = ; $x = 1.048$, $y = -2.044$, $z = 2.603$)

b) $54x + y + z = 110$
 $2x + 15y + 6z = 72$
 $-x + 6y + 27z = 85$ (Ans. = ; $x = 1.926$, $y = 3.574$, $z = 2.425$)

c) $27x + 6y - z = 85$
 $6x + 15y + 2z = 72$
 $x + y + 54z = 110$ (Ans. = ; $x = 2.426$, $y = 3.573$, $z = 1.926$)

d) $5x + 2y + z = 12$
 $x + 4y + 2z = 15$
 $x + 2y + 5z = 20$ (Ans. = ; $x = 1$, $y = 2$, $z = 3$)

e) $83x + 11y - 4z = 95$
 $7x + 52y + 13z = 104$
 $3x + 8y + 29z = 71$ (Ans. = ; $x = 1.0579$, $y = 1.3672$, $z = 1.9617$)

ENGINEERING CLASSES BY AGNIHOTRI SIR (FOR ED, M1, M2 , M3, BEEE, NA, CONTROL, DSP, ADC ...)

ADDRESS: AEGC, INFRONT C.M. HOUSE , SHERPURA, VIDISHA -7415712500