



Direction – (Qⁿ 1 to Qⁿ 2) : Solve the simultaneous linear equation by Gauss Elimination Method ?

Q.1) $2x + 4y + z = 3$

$$3x + 2y - 2z = -2$$

$$x - y + z = 6$$

(Ans. : $x = 2$, $y = -1$, $z = 3$)

Q.2) $10x + y + 2z = 13$

$$3x + 10y + z = 14$$

$$2x + 3y + 10z = 15$$

(Ans. : $x = 1$, $y = 1$, $z = 1$)

Direction – (Qⁿ 3 to Qⁿ 5) : Solve the following by gauss Jordan & Crouts method ?

Q.3) $x + y + z = 9$

$$2x - 3y + 4z = 13$$

$$3x + 4y + 5z = 40$$

(Ans. : $x = 1$, $y = 3$, $z = 5$)

Q.4) $x + 2y + z = 8$

$$2x + 3y + 4z = 20$$

$$4x + 3y + 4z = 16$$

(Ans. : $x = -2$, $y = 3.2$, $z = 3.6$)

Q.5) $2x - 6y + 8z = 24$

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

$$3x + y + 2z = 16$$

(Ans. : $x = 1$, $y = 3$, $z = 5$)

Direction – (Qⁿ 6 to Qⁿ 10) : Solve the following simultaneous equation by applying Jacobi's & Gauss seidal iterative method upto 3 decimal places ?

Q.6) $10x + 2y + z = 9$

$$2x + 20y - 2z = -44$$

$$2x + 3y + 10z = 22$$

(Ans. : $x = 1.048$, $y = -2.044$, $z = 2.603$)

Q.7) $54x + y + z = 110$

$$2x + 15y + 6z = 72$$

$$-x + 6y + 27z = 85$$

(Ans. : $x = 1.926$, $y = 3.574$, $z = 2.425$)

Q.8) $27x + 6y - z = 85$

$$6x + 15y + 2z = 72$$

$$x + y + 54z = 110$$

(Ans. : $x = 2.426$, $y = 3.573$, $z = 1.926$)

Q.9) $5x + 2y + z = 12$

$$x + 4y + 2z = 15$$

$$x + 2y + 5z = 20$$

(Ans. : $x = 1$, $y = 2$, $z = 3$)

Q.10) $83x + 11y - 4z = 95$

$$7x + 52y + 13z = 104$$

$$3x + 8y + 29z = 71$$

(Ans. : $x = 1.0579$, $y = 1.3672$, $z = 1.9617$)



Direction – (Qⁿ 11 to Qⁿ 13) : Solve following by Bisection method (Balzano method)?

- Q.11)** Find a real root of the equation $f(x) = x^3 - 2x - 5 = 0$ in 5 stages? (Ans.= 2.094)
- Q.12)** Find a real root of the equation $f(x) = x^3 - 4x - 9 = 0$ in 4 stages ? (Ans.= 2.6875)
- Q.13)** Find a real root of $x^3 - x - 1 = 0$ in 5 stages ? (Ans.=1.34375)

Direction – (Qⁿ 14 to Qⁿ 17) : Solve the following by Regula Falsi method (False position method) ?

- Q.14)** Find a real root of $x^3 - 9x + 1 = 0$ correct upto 4 decimal places? (Ans.2.9428)
- Q.15)** Find the real root of the equation $x \log x - 1.2 = 0$ correct upto 4 decimal places ? (Ans.2.7406)
- Q.16)** Find a real root of $x^3 - 4x + 1 = 0$ correct upto 3 decimal places ? (Ans.=1.861)
- Q.17)** Solve $3x - \cos x - 1 = 0$ correct upto 4 decimal places ? (Ans.=0.6071)

Direction – (Qⁿ 18 to Qⁿ 19) : Solve the following by secant method ?

- Q.18)** Determine the root of the equation $\cos x = x.e^x$ (Ans.= 0.5177)
- Q.19)** Find a real root of $x^3 - 2x - 5 = 0$ correct upto 3 decimal places? (Ans.=2.094)

Direction – (Qⁿ 20 to Qⁿ 24) : Solve the following by Newton Raphson method (N-R Method) ?

- Q.20)** Find a real root of $x^3 - 2x - 5 = 0$ correct upto 5 decimal places? (Ans.=2.09455)
- Q.21)** Find a real root of $x^3 - 3x + 1 = 0$ correct upto 3 decimal places? (Ans = 0.347)
- Q.22)** Find a real root of $x^4 - x - 10 = 0$ correct upto 3 decimal places? (Ans.=1.856)
- Q.23)** Find the cube-root of 15 correct upto 5 significant figure (Ans.=2.4662)
- Q.24)** Find the cube-root of 48 correct upto 3 decimal places? (Ans.=3.634)