Question No : 1 of 33

Symbols used in binary system are

Answer

- 1,2
- 0,1
- -1,0
- None of these

Question No : 2 of 33

In Regula Falsi Method two points x_n and x_{n+1} are chosen such that $f(x_n)$ and $f(x_{n+1})$ have ----------signs.

00:54

Answer

- (●) Positive
- ( ) Negative
- ( ) Opposite

Question No : 3 of 33

01:12

Maximum number of complex roots in an equation of degree 3 are

Answer

- 2
- 3
- 0
- 1

Question No : 4 of 33

Marks: 1 (Tim

If x=a is a root of the equation f(x)=0, a polynomial of nth degree, then (x-a) is a factor of f(x) and by dividing f(x) by x-a, we get a polynomial of degree------

01:37

Answer

- (•) n-1
- ( ) n
- ( ) n+1
- ( ) n+2

Question No : 5 of 33

The Secant method requires ------starting values

Answer

1

2

3

4

If S is a symmetric matrix then

02:00

Answer

- $S^{-1} = S^T$
- $S^{-1} = S$
- $S^T = S$
- All are true

Question No : 7 of 33

Marks: 1 (T

Diagonal dominance of a coefficient matrix is strictly checked in

02:17

Answer

- Muller's method.
- Bisection method
- Jacobi's method
- Newton-Raphson method

Question No : 8 of 33

Marks: 1

A sufficient condition for convergence of the iterative solution to the exact solution in Gauss-Jacobi's iterative method is

02:34

Answer

- $|a_{ii}| > \sum_{\substack{j=1 \\ j \neq i}}^{n} |a_{ij}|; \quad i = 1, 2, \ldots, n.$
- $|a_{ii}| \geq \sum_{\substack{j=1 \\ j \neq i}}^{n} |a_{ij}|; \quad i = 1, 2, \ldots, n.$
- $|a_{ii}| < \sum_{\substack{j=1 \\ j \neq i}}^{n} |a_{ij}|; \quad i = 1, 2, \ldots, n.$

Question No : 9 of 33

In Gauss-Jordan elimination method, the elements above and below the main diagonal are made simultaneously

03:02

Answer

- (•) 0
- ( ) 1
- ( ) -1
- ( ) None of the given choices

Question No : 10 of 33

Mar

Convergence criterion in relaxation method is given by _____ .

Answer

- $|a_{ii}| > \sum_{\substack{j=1 \\ j \neq i}}^{n} |a_{ij}|, \quad i = 1, 2, \ldots, n$

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- $|a_{ii}| \geq \sum_{\substack{j=1 \\ j \neq i}}^{n} |a_{ij}|, \quad i = 1, 2, \ldots, n$
- $|a_{ii}| < \sum_{\substack{j=1 \\ j \neq i}}^{n} |a_{ij}|, \quad i = 1, 2, \ldots, n$

Question No : 11 of 33

Eigen vectors

Answer

- Always have positive components.
- Always have negative components.
- Both vectors and scalars.
- May have positive or negative components

Eigenvalues are

Answer

- (●) Real numbers
- ( ) Even numbers
- ( ) Odd numbers
- ( ) Vectors

Question No : 13 of 33

Jacobi's method is highly recomended for....

Answer

- (•) Real and symmetric matrix.
- ( ) non-symmetric matrix
- ( ) Complex symmetric matrix.
- ( ) None of the given choices

Question No : 14 of 33

Jacobi's method for finding the eigen values can be applied to

Answer

- (●) Real and symmetric matrix
- ( ) Real and unsymmetric matrix
- ( ) Real and complex unsymmetric matrix.
- ( ) None of given choices.

Question No : 15 of 33

Mar

Forward difference operator is defined for

Answer

- equally spaced abscissas .
- unequally spaced abscissas.
- constant abscissas.

Question No : 16 of 33

Mark

The error caused by only truncating the series upto the finite terms is called---------.

04:21

Answer

- Truncation error
- Inherent error
- Relative error

Question No : 17 of 33

Mar

Muller's method requires --------starting points.

Answer

1

2

3

4

9 / 17

04:26

Question No : 18 of 33

In Gauss Jordan method which of the following transformations are allowed?

04:35

Answer

- (●) Diagonal transformation
- ( ) Column transformation
- ( ) Row transformation
- ( ) Square transformation

Question No : 19 of 33

Symbol used for forward differences is _____ .

Answer

- ∇
- Δ
- δ
- μ

In relaxation method, for fast convergence all the terms should be taken to one side and then reordering should be done so that the largest coefficie
_____ .

Answer

- (•) Diagonal
- ( ) End of the rows
- ( ) Beginning of the rows
- ( ) None of the given choices

Question No : 21 of 33

Gauss-Seidal method is ----------in nature.

Answer

- Direct
- None of the given choices
- Random
- Iterative

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Question No : 22 of 33

Gauss-Seidal iterative method is used to find solution of _____ .

Answer

- Non linear inequality
- Non linear equation
- Linear Equation
- Linear inequality

Question No : 23 of 33

Newton – Raphson method fails if $f'(x) = \ldots\ldots$ in the neighborhood of the root.

05:51

Answer

- (•) 0
- ( ) None of these
- ( ) -1
- ( ) 1

Question No : 24 of 33

If matrix [B] is the inverse of a matrix [A] , then _____ .

Answer

- [A][B] = I where I is the identity matrix.
- [A][B] = [S] where S is the symmetric matrix.
- [A][B] = [D] where D is the diagonal matrix

Question No : 25 of 33

Mo

It can be verified for a matrix $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$ that _____ .

Answer

- $AA^{-1} = I$, I = identity matrix
- $AA^{-1} = D$, D = diagonal matrix
- $AA^{-1} = S$, S = symmetric matrix
- $AA^{-1} = Z$, Z = orthogonal matrix

06:08

13 / 17

When λ is the eigen value and X is the corresponding eigen vector then_____ .

Answer

$[A]^{-1}X = \lambda X$

06:24

$[A]X = \lambda X$

13 / 17

$[A]^{2}X = \lambda X$

Question No : 27 of 33

In Jacobi's method for finding the eigen values, value of θ is found by the formula _____ .

Answer

$$tan2\theta = \frac{2a_{ij}}{a_{ii} + a_{jj}}$$

$$tan2\theta = \frac{2a_{ij}}{a_{ii} - a_{jj}}$$

06:40

Subjective Parts

Question No : 28 of 33

Find the next approximation using Gauss Seidel iterative method

$$x = \frac{1}{28}[32 - 4y + z]$$

$$y = \frac{1}{17}[35 - 2x - 4z]$$

Answer

B I U Styles Format Font Size

sol.

Given system :

$$x = \frac{1}{28}[32 - 4y + z] \quad \ldots(i)$$

Question No : 29 of 33

Convert (7)10 into its binary equivalent.

Answer

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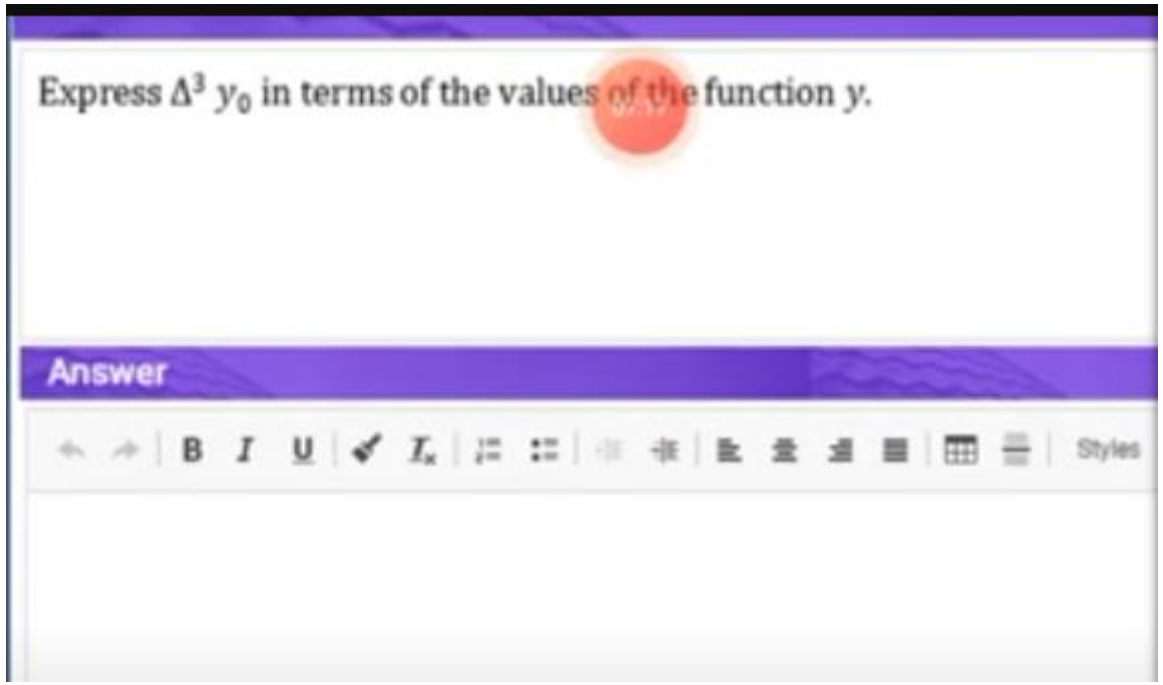
Binary	Given number	Remainder
2	70	--
2	35	0
2	17	1
2	8	1
2	4	0
2	2	0


Express $\Delta^3 y_0$ in terms of the values of the function y.
Answer
Styles

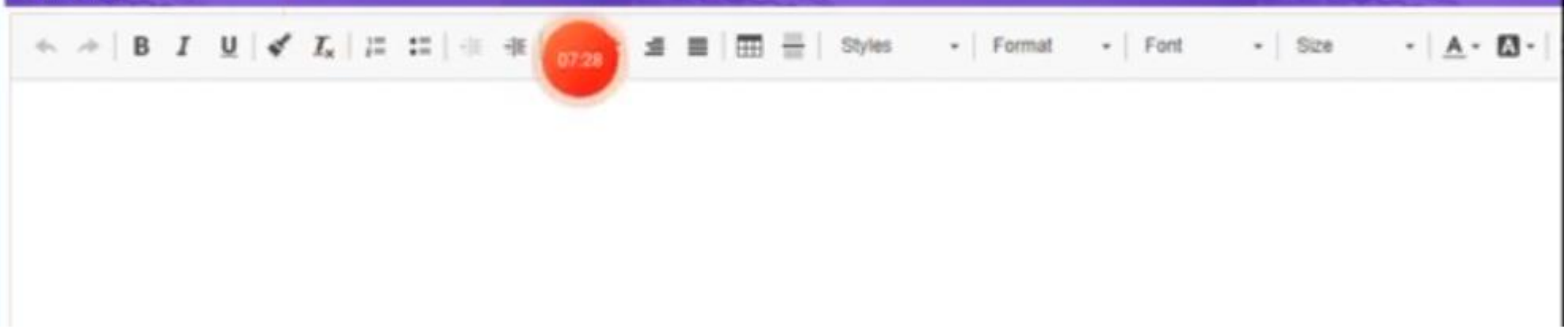
Question No : 31 of 33

Marks: 5

Solve the following system of equations by Jacobi's iterative method to three decimal places up to one iteration.

$$83x + 11y - 4z = 95$$
$$7x + 52y + 13z = 104$$
$$3x + 8y + 29z = 71$$

Answer



Question No : 32 of 33

Marks: 5

Approximate the root of $x^3 - 2x - 5 = 0$, between (2,3),
by using Regula – Falsi method upto two iterations.

07:41

Answer

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Sol.

$f(x) = x^3 - 2x - 5$

here $x_1 = 2$ *and* $x_2 = 3$

SO,

Question No : 33 of 33

Using Jacobi's method, find the orthogonal matrix S_1 of the following matrix,

$$\begin{bmatrix} 3 & 2 & 1 \\ 2 & 3 & 2 \\ 1 & 2 & 3 \end{bmatrix}$$

Answer

Styles | Format | Font | Size

In this :

$a_{12} = a_{21} = 2$

Now jacobi method :

$\tan 2A = \frac{2a_{ij}}{\quad}$

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