Professional Online Academy Vu Topper RM

MTH603-Numerical Analysis
Update MCQ'S Mid Term
By Vu Topper RM

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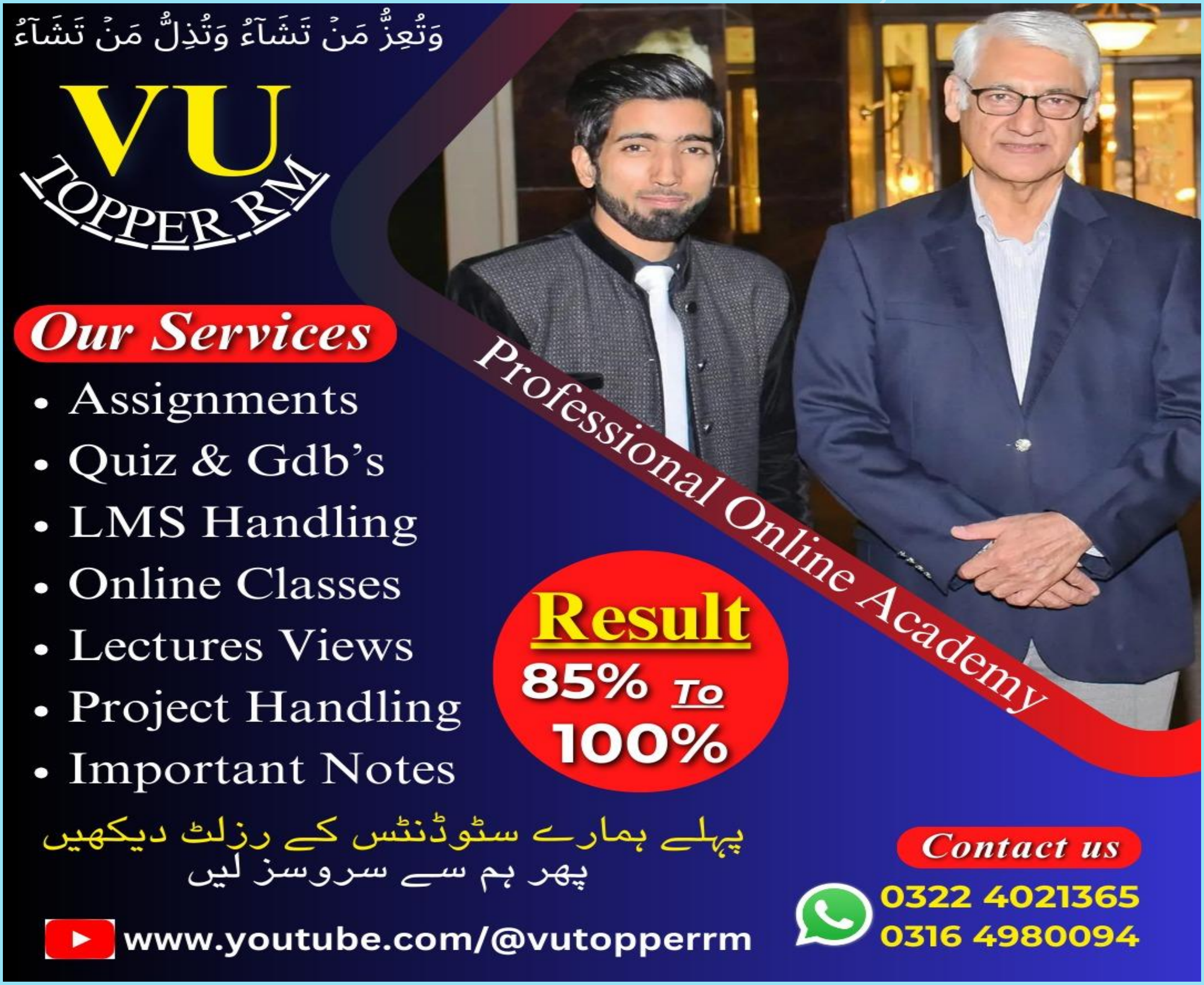

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Question No:1 **(Marks:1)** **Vu-Topper RM**

While\,using\,the\,relaxation\,method\,for\,finding\,the\,solution\,of\,the\, following\,system\, \hfill \\ \begin{array}{*{20}{l}} {8{x_1} + 3{x_2} - 2{x_3} = 5} \\\ {4{x_1} + 7{x_2} + 2{x_3} = 9} \\\ {3{x_1} + 5{x_2} + 9{x_3} = 2}
\end{array}\,with\,the\,initial\,vector(0,0,0),the\,residuals\,would\,be
\hfill \\\ \end{gathered}

Options:

A. {R_1} = 3,{R_2} = 7,{R_3} = 6

B. {R_1} = 2,{R_2} = 6,{R_3} = 3

C. {R_1} = 5,{R_2} = 9,{R_3} = 2

D. {R_1} = - 4,{R_2} = 8,{R_3} = 9

Question No:2 **(Marks:1)** **Vu-Topper RM**

While using Jacobi method for the matrix A = \left[
{\begin{array}{*{20}{c}}
1&{1/4}&{1/3}\\{1/4}&{1/3}&{1/2}\\{1/3}&{1/2}&{1/5}
\end{array}} \right] the value of 'theta θ' can be found as

Options:

A. \tan 2\theta = \frac{{2{a_{23}}}}{{{a_{22}} - {a_{33}}}}

B. \tan 2\theta = \frac{{2{a_{13}}}}{{{a_{33}} - {a_{11}}}}

C. \tan 2\theta = \frac{{2{a_{13}}}}{{{a_{11}} - {a_{33}}}}

D. \tan 2\theta = \frac{{2{a_{12}}}}{{{a_{11}} - {a_{22}}}}

Question No:3 **(Marks:1)** **Vu-Topper RM**

While using Jacobi method for the matrix A = \left[
{\begin{array}{*{20}{c}} 2&{ - 1}&0\\{ - 1}&2&0\\0&0&2
\end{array}} \right] and 'theta θ =pi/4', the orthogonal matrix S1

Options:

A. {S_1} = \left[{\begin{array}{*{20}{c}} 1&0&0\\0&{\cos \frac{\pi }{4}}&{ - \sin \frac{\pi }{4}}\\0&{\sin \frac{\pi }{4}}&{\cos \frac{\pi }{4}} \end{array}} \right]

B. {S_1} = \left[{\begin{array}{*{20}{c}} {\cos \frac{\pi }{4}}&0&{ - \sin \frac{\pi }{4}}\\0&1&0\\{\sin \frac{\pi }{4}}&0&{\cos \frac{\pi }{4}} \end{array}} \right]

C. {S_1} = \left[{\begin{array}{*{20}{c}} {\cos \frac{\pi }{4}}&{ - \sin \frac{\pi }{4}}&0\\{\sin \frac{\pi }{4}}&{\cos \frac{\pi }{4}}&0\\0&0&1 \end{array}} \right]

D. {S_1} = \left[{\begin{array}{*{20}{c}} {\cos \frac{\pi }{4}}&0&0\\0&{ - \sin \frac{\pi }{4}}&0\\0&0&1 \end{array}} \right]

Question No:4 **(Marks:1)** **Vu-Topper RM**

Every non-zero vector x is an eigenvector of the identity matrix with Eigen value ....

A. one

B. four

C. two

D. three

Question No:5 **(Marks:1)** **Vu-Topper RM**

While using Jacobi method for the matrix A = \left[{\begin{array}{*{20}{c}} 1&{\sqrt 3 }&{\sqrt 2 }\\{\sqrt 3 }&3&2\\{\sqrt 2 }&2&1 \end{array}} \right] and theta θ=0.5535 the orthogonal matrix S1 will be given as

Options:

A. {S_1} = \left[{\begin{array}{*{20}{c}} 1&0&0\\0&{\cos 0.5535}&{ - \sin 0.5535}\\0&{\sin 0.5535}&{\cos 0.5535} \end{array}} \right]

B. {S_1} = \left[{\begin{array}{*{20}{c}} {\cos 0.5535}&{ - \sin 0.5535}&0\\{\sin 0.5535}&{\cos 0.5535}&0\\0&0&1 \end{array}} \right]

C. {S_1} = \left[{\begin{array}{*{20}{c}} {\cos 0.5535}&0&{ - \sin 0.5535}\\0&1&0\\{\sin 0.5535}&0&{\cos 0.5535} \end{array}} \right]

D. {S_1} = \left[{\begin{array}{*{20}{c}} {\cos 0.5535}&0&0\\0&{ - \sin 0.5535}&0\\0&0&1 \end{array}} \right]

Question No:6 **(Marks:1)** **Vu-Topper RM**

In the context of Jacobi's method for finding Eigen values and Eigen vectors of a real symmetric matrix of order 2*2, if |-5| be its largest off-diagonal and its two equal diagonal values are '3' then which of the following will be its corresponding argument value 'theta' of Orthogonal Matrix?

A. Pi/4
B. Pi/6
C. Pi/3
D. Pi/2

Question No:7 **(Marks:1)** **Vu-Topper RM**

If{\text{ }}A = \left[{\begin{array}{*{20}{c}} 1&1&1 \\\\ 4&3&{ - 1} \\\\ 3&5&3 \end{array}} \right]\,and\,{A^{ - 1}} = \left[{\begin{array}{*{20}{c}} {\frac{7}{5}}&{\frac{1}{5}}&{ - \frac{2}{5}} \\\\ { - \frac{3}{2}}&0&{\frac{1}{2}} \\\\ {\frac{{11}}{{10}}}&{ - \frac{1}{5}}&{ - \frac{1}{{10}}} \end{array}} \right]then\,the\,value\,of{\text{ }}A{A^{ - 1}}will\,be

Options:

A. \left[{\begin{array}{*{20}{c}} 1&1&1 \\\ 1&0&{ - 1} \\\ 0&0&1 \end{array}} \right]
B. \left[{\begin{array}{*{20}{c}} 1&0&1 \\\ 0&1&0 \\\ 1&0&1 \end{array}} \right]
C. \left[{\begin{array}{*{20}{c}} 1&0&0 \\\ 0&1&0 \\\ 0&0&1 \end{array}} \right]
D. \left[{\begin{array}{*{20}{c}} 1&0&1 \\\ 0&1&{ - 1} \\\ 1&0&0 \end{array}} \right]

Question No:8 **(Marks:1)** **Vu-Topper RM**

While\,using\,the\,relaxation\,method\,for\,finding\,the\,solution\,of\,the\, following\,system\, \hfill \\ \begin{array}{*{20}{l}} {11{x_1} + {x_2} - {x_3} = 8} \\\ {{x_1} + 8{x_2} + 5{x_3} = 9} \\\ {{x_1} + {x_2} + 9{x_3} = 7}

\end{array}\,with\,the\,initial\,vector(0,0,0),the\,residuals\,would\,be
\hfill \\\ \end{gathered}

Options:

A. {R_1} = - 1,{R_2} = 5,{R_3} = 9

B. {R_1} = 1,{R_2} = 8,{R_3} = 1

C. {R_1} = 8,{R_2} = 9,{R_3} = 7

D. {R_1} = 11,{R_2} = 1,{R_3} = 1

Question No:9 (Marks:1) Vu-Topper RM

While\,using\,the\,relaxation\,method\,for\,finding\,the\,solution\,of\,the\, following\,system\, \hfill \\ \begin{array}{*{20}{l}} {8{x_1} + 3{x_2} - 2{x_3} = 5} \\\ {4{x_1} + 7{x_2} + 2{x_3} = 9} \\\ {3{x_1} + 5{x_2} + 9{x_3} = 2}
\end{array}\,with\,the\,initial\,vector(0,0,0),the\,residuals\,would\,be
\hfill \\\ \end{gathered}

Options:

A. {R_1} = - 4,{R_2} = 8,{R_3} = 9

B. {R_1} = 2,{R_2} = 6,{R_3} = 3

C. {R_1} = 5,{R_2} = 9,{R_3} = 2

D. {R_1} = 3,{R_2} = 7,{R_3} = 6

Question No:10 (Marks:1) Vu-Topper RM

If A = \left[{\begin{array}{*{20}{c}} 1&2&1\\0&3&{ - 1}\\0&1&3 \end{array}} \right] then by using Gaussian Elimination method the value of {A^{ - 1}} will be

Options:

A. \left[{\begin{array}{*{20}{c}} { - 1}&{\frac{1}{2}}&{\frac{1}{2}}\\0&{ - \frac{3}{{10}}}&{ - \frac{1}{{10}}}\\0&{ - \frac{1}{{10}}}&{ - \frac{3}{{10}}} \end{array}} \right]

B. \left[{\begin{array}{*{20}{c}} 1&{ - \frac{1}{2}}&{ - \frac{1}{2}}\\0&{\frac{3}{{10}}}&{\frac{1}{{10}}}\\0&{ - \frac{1}{{10}}}&{\frac{3}{{10}}} \end{array}} \right]

C. \left[{\begin{array}{*{20}{c}}
0&{\frac{3}{{10}}}&{\frac{1}{{10}}}\\1&{ - \frac{1}{2}}&{ -
\frac{1}{2}}\\0&{ - \frac{1}{{10}}}&{\frac{3}{{10}}} \end{array}}
\right]
D. \left[{\begin{array}{*{20}{c}} 0&{ - \frac{3}{{10}}}&{ -
\frac{1}{{10}}}\\{ - 1}&{ - \frac{1}{2}}&{ - \frac{1}{2}}\\0&{ -
\frac{1}{{10}}}&{ - \frac{3}{{10}}} \end{array}} \right]

Question No:11 (Marks:1) Vu-Topper RM
An eigenvector V is said to be normalized if the coordinate of largest magnitude is equal to ______.
A. zero
B. unity

Question No:12 (Marks:1) Vu-Topper RM
While\,using\,the\,relaxation\,method\,for\,finding\,the\,solution\,of\,the\,
below\,given\,system,\, \hfill \\
which\,of\,the\,following\,increment\,will\,be\,introduced? \hfill \\
\begin{array}{*{20}{l}} {6{x_1} - 2{x_2} + 3{x_3} = 1} \\\ { -
2{x_1} + 7{x_2} + 2{x_3} = 5} \\\ {{x_1} + {x_2} - 5{x_3} = - 13}
\end{array} \hfill \\\ \end{gathered}
Options:
A. d{x_1} = \frac{{{R_1}}}{{{a_{11}}}}
B. d{x_2} = \frac{{{R_2}}}{{{a_{22}}}}
C. d{x_1} = \frac{{{R_1}}}{{{a_{22}}}}
D. d{x_3} = \frac{{{R_3}}}{{{a_{33}}}}

Question No:13 (Marks:1) Vu-Topper RM
Let [A] be a 3x3 real symmetric matrix with \left| {{a_{13}}} \right| be numerically the largest off-diagonal element of A, then we can construct orthogonal matrix S1 by Jacobi’s method as
Options:

A. \left[{\begin{array}{*{20}{c}} {\cos \theta }&0&{ - \sin \theta }\\0&1&0\\{\sin \theta }&0&{\cos \theta } \end{array}} \right]
B. \left[{\begin{array}{*{20}{c}} 1&0&0\\0&{\cos \theta }&{ - \sin \theta }\\0&{\sin \theta }&{\cos \theta } \end{array}} \right]
C. \left[{\begin{array}{*{20}{c}} {\cos \theta }&{ - \sin \theta }&0\\{\sin \theta }&{\cos \theta }&0\\0&0&1 \end{array}} \right]
D. \left[{\begin{array}{*{20}{c}} 1&0&0\\0&{\cos \theta }&{ - \cos \theta }\\0&{\sin \theta }&{ - \sin \theta } \end{array}} \right]

Question No:14 (Marks:1) Vu-Topper RM
\begin{array}{l} Let\,\left[A \right]\,be\,a\,3 \times 3\,real\,symmetric\,matrix\,with\,\left| {{a_{13}}} \right|\,be\,the\,numerically\,\,l\arg est\,off - diagonal\,element\,then\,\\u\sin g\,Jacobi's\,method\,the\,value\,of\,\theta \,can\,be\,found\,by \end{array}
Options:
A. \tan 2\theta = \frac{{2{a_{23}}}}{{{a_{22}} - {a_{33}}}}
B. \tan 2\theta = \frac{{2{a_{23}}}}{{{a_{33}} - {a_{22}}}}
C. \tan 2\theta = \frac{{2{a_{12}}}}{{{a_{11}} - {a_{22}}}}
D. \tan 2\theta = \frac{{2{a_{13}}}}{{{a_{11}} - {a_{33}}}}

Question No:15 (Marks:1) Vu-Topper RM
While using Gaussian Elimination method, the following augmented matrix [\left. A \right|I] = \left[{\begin{array}{*{20}{c}} 1&{\frac{3}{4}}&0&{\frac{{11}}{{40}}}&{\frac{1}{5}}&{ - \frac{1}{{40}}}\\0&1&0&{ - \frac{3}{2}}&0&1\\0&0&1&{\frac{{11}}{{40}}}&{ - \frac{1}{5}}&{ - \frac{1}{{10}}} \end{array}} \right] will reduce in identity matrix by performing
Options:
A. {R_1} - \frac{3}{4}{R_2}
B. {R_2} - \frac{3}{4}{R_1}
C. {R_1} - \frac{4}{3}{R_2}

D. {R_2} - \frac{3}{4}{R_1}

Question No:16 **(Marks:1)** **Vu-Topper RM**

In full pivoting we interchange rows and columns such that the…………element in the matrix of the variables also get changed.

A. Middle

B. None of the given choices

C. Largest

D. Smallest

Question No:17 **(Marks:1)** **Vu-Topper RM**

If the determinant of a matrix A is equal to zero then the system of equations will have……….

A. no solution or infinitely many solution

B. unique solution

C. no solution

D. infinitely many solution

Question No:18 **(Marks:1)** **Vu-Topper RM**

While solving the system of linear equations;

x-y=2, -x+y=3 by Jacobi's method, if (0,0) be its first approximate solution, then which of the following is second approximate solution?

A. (2,3)

B. Second approximate solution doesn't exist as system is singular

C. (0,3)

D. (2,0)

Question No:19 **(Marks:1)** **Vu-Topper RM**

Under iterative methods, the initial approximate solution is assumed to be………….

A. None of the given choices

B. Found

C. Unknown

D. Known

Question No:20 **(Marks:1)** **Vu-Topper RM**

If the pivot element happens to be zero, then the i-th column elements are searched for the numerically …………… element.

A. Largest
B. Smallest

Question No:21 **(Marks:1)** **Vu-Topper RM**

The linear equation: x+y=1 has --------- solution/solutions.

A. no solution
B. unique
C. finite many
D. infinite many

Question No:22 **(Marks:1)** **Vu-Topper RM**

If there are three equations in two variables, then which of the following is true?

A. System may have infinite many solutions
B. System may have unique solutions
C. All above possibilities exist depends on the coefficients of variables
D. System may have multiple numbers of finite solutions

Question No:23 **(Marks:1)** **Vu-Topper RM**

The linear equation 2x+0y-2=0 has----- solution(s).

A. finite
B. unique
C. no solution
D. infinite

Question No:24 (Marks:1) Vu-Topper RM

For a system of linear equations, the corresponding coefficient matrix has the value of determinant; |A| = –3, then which of the following is true?

- **A. The system has unique solution**
- B. The system has infinite may solutions
- C. The system has finite multiple solutions
- D. The system has no solution

Question No:25 (Marks:1) Vu-Topper RM

If n x n matrices A and B are similar, then they have the same eigenvalues (with the same multiplicities).

A. False

B. True

Question No:26 (Marks:1) Vu-Topper RM

In the context of Jacobi's method for finding Eigen values and Eigen vectors of a real symmetric matrix of order 2*2, if |-5| be its largest off-diagonal then which of the following will be its corresponding off-diagonal values of Orthogonal Matrix?

Options:

A. Cos(theta), -Cos(theta)

B. Sin(theta), -Sin(theta)

C. -Sin(theta), Cos(theta)

D. Sin(theta), Cos(theta)

Question No:27 (Marks:1) Vu-Topper RM

6.Let A be an n ×n matrix. The number x is an eigenvalue of A if there exists a non-zero vector v such that Av = xv

A. True

B. False

Question No:28 **(Marks:1)** **Vu-Topper RM**

While using power method, from the resultant normalize vector u(5)=12.4817 0.4365210.6254311.0 we have the largest eigen value and the corresponding eigenvector as

A. λ=12.4817,(X)= 1.00.4365210.625431

B. λ=12.4817,(X)= 0.4365210.6254311.0

C. λ=0.436521,(X)= 12.48170.6254311.0

D. λ=0.625431,(X)= 0.43652112.48171.0

Question No:29 **(Marks:1)** **Vu-Topper RM**

For a function; y=f(x), if y0, y1 and y2 are 2,3 and 5 respectively then which of the following will be 2nd order Backward difference at y2 = 5 ?

A. -1

B. 1

C. -2

D. 2

Question No:30 **(Marks:1)** **Vu-Topper RM**

While using Jacobi method for the matrix A= 13–√23–√32–√22–√1 and 'theta θ =pi/4',the orthogonal matrix S1 will be given by

A. S1= cosπ40sinπ4010−sinπ40cosπ4

B. S1= 1000cosπ4sinπ40−sinπ4cosπ4

C. S1= cosπ4sinπ40−sinπ4cosπ40001

D. S1= cosπ4000−sinπ40001

Question No:31 **(Marks:1)** **Vu-Topper RM**

Let [A] be a 3x3 real symmetric matrix with |a23| be numerically the largest off-diagonal element of A, then we can construct orthogonal matrix S1 by Jacobi's method as

A. cosθ0sinθ010−sinθ0cosθ

B. 1000cosθsinθ0−cosθ−sinθ

C. cosθsinθ0−sinθcosθ0001
D. 1000cosθsinθ0−sinθcosθ

Question No:32 **(Marks:1)** **Vu-Topper RM**
While using power method, from the resultant normalize vector u(2)=9.85490 0.6789581.01.123685 we have the largest eigen value and the corresponding eigenvector as
A. λ=1.123685,(X)= 0.6789581.09.85490
B. λ=1.123685,(X)= 9.854901.00.678958
C. λ=9.85490,(X)= 1.1236851.00.678958
D. λ=9.85490,(X)= 0.6789581.01.123685

Question No:33 **(Marks:1)** **Vu-Topper RM**
While using power method, the computed vector u(2)= 1.8−0.80.6 will be in normalized form as
A. u(2)=1.8 1−0.8/1.80.6/1.8
B. u(2)=0.6 1.8/0.6−0.8/0.61
C. u(2)=2.8 1.8/2.8−0.8/2.81
D. u(2)=−0.8 −1.8/0.81−0.6/0.8

Question No:34 **(Marks:1)** **Vu-Topper RM**
While using power method, the computed vector u(1)= 12−6−2 will be in normalized form as
A. u(1)=−2 −12/26/21
B. u(1)=−12 −2/12−2/61
C. u(1)=12 1−6/12−2/12
D. u(1)=112 1−12/6−12/2

Question No:35 **(Marks:1)** **Vu-Topper RM**
While using the Gauss-Seidel Method for finding the solution of the following system 2x+2y+z=3x+3y+z=2x+y+z=2 with the initial guess (0,0,0), the next iteration would be

A. (32,−23,−2)
B. (32,57,19)
C. (32,16,13)
D. (32,23,2)

Question No:36 (Marks:1) Vu-Topper RM
Which of the following system of equation is diagonally dominant?
A. 8x+y−z=5 2x+13y+5z=7 x+2y+9z=3
B. 8x+y−z=5 x+2y+9z=3 2x+13y+5z=7
C. 2x+13y+5z=7 8x+y−z=5 x+2y+9z=3
D. x+2y+9z=3 8x+y−z=5 2x+13y+5z=7

Question No:37 (Marks:1) Vu-Topper RM
Which of the following systems of linear equations has a strictly diagonally dominant coefficient matrix?
A. −2x1+7x2+2x3=56x1−2x2+3x3=1x1+x2−5x3=−13
B. −2x1+7x2+2x3=56x1−2x2+3x3=1x1+x2−5x3=−13
C. 6x1−2x2+3x3=1−2x1+7x2+2x3=5x1+x2−5x3=−13
D. x1+x2−5x3=−136x1−2x2+3x3=1−2x1+7x2+2x3=5

Question No:38 (Marks:1) Vu-Topper RM
While solving a system of three linear equations in three variables by Jacobi's method, the first approximate solution is NECESSARY to be taken as (0,0,0).
A. True
B. False

Question No:39 (Marks:1) Vu-Topper RM
While using the Gauss-Seidel Method for finding the solution of the system of equation, the following system
x+2y+2z=3x+3y+3z=2x+y+5z=2 can be rewritten as
A. x=3−2y−2zy=23−x3−zz=25−x5−y5
B. x=32−y−zy=2−x3−zz=25−x5−y5

C. x=1−23y−23zy=1−32x−32zz=1−y2−x2
D. x=3−2y−2zy=2−x−3zz=2−y−x

Question No:40 (Marks:1) Vu-Topper RM
While solving the system; x+4y = 4, 2x–y = 1 by Gauss-Seidel method, which of the following ordering will lead more rapidly to the desired order of accuracy?
A. 2x-y = 1, x+4y = 4
B. no need to reordering
C. x+4y =1, 2x- y =4
D. x-2y = 1, x+4y =4

Question No:41 (Marks:1) Vu-Topper RM
In Gauss-Jacobi's method, the corresponding elements of x(r+1)I replaces those of x(r)I as soon as they become available.
A. True
B. False

Question No:42 (Marks:1) Vu-Topper RM
An augmented matrix may also be used to find the inverse of a matrix by combining it with the …… matrix.
A. Inverse
B. None of the given choices
C. Identity
D. Square

Question No:43 (Marks:1) Vu-Topper RM
The system of linear equations; 2x+3y = 6, x+4y = 5 is not strictly diagonal dominant as---------
A. |2| < |3|
B. |2| < |4|
C. |2| < |1|
D. |3| < |4|

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

Question No:44 **(Marks:1)** **Vu-Topper RM**

While using the Gauss-Seidel Method for finding the solution of the following system 3x+y+z=112x+5y−z=16x+y+5z=4 with initial guess (0,0,0), the next iteration would be

A. (113,165,−45)

B. (113,−165,−45)

C. (113,2615,−725)

D. (113,511,213)

Question No:45 **(Marks:1)** **Vu-Topper RM**

While solving a system of linear equations by Gauss Jordon Method, in which of the following case the partial pivoting is essential?

A. When lower triangular entries are zero

B. When pivots are zero

C. When the upper triangular entries are zero

D. When diagonal entries are zeros

Question No:46 **(Marks:1)** **Vu-Topper RM**

Which of the following system of equation is diagonally dominant

A. 3x+y+z=3x+y+5z=22x+5y−z=4

B. x+y+5z=23x+y+z=32x+5y−z=4

C. 3x+y+z=32x+5y−z=4x+y+5z=2

D. 2x+5y−z=43x+y+z=3x+y+5z=2

Question No:47 **(Marks:1)** **Vu-Topper RM**

In ………… method, matrix [A] of the system of equations is decomposed into the product of two matrices [L] and [U], where [L] is a lower-triangular matrix and [U] is an upper-triangular matrix with 1's on its main diagonal.

A. Gauss-Seidel

B. Crout's Reduction

C. None of the given choices

D. Gaussian elimination

Question No:48 **(Marks:1)** **Vu-Topper RM**

Which of the following systems of linear equations has a strictly diagonally dominant coefficient matrix?

A. 7x1+5x2−1x3=9−x1+3x2+x3=1x1+2x2+4x3=1

B. 4x1+2x2+3x3=17x1+5x2−8x3=9−5x1+3x2+2x3=1

C. 4x1+2x2+3x3=1−5x1+3x2+2x3=17x1+5x2−8x3=9

D. −5x1+3x2+2x3=17x1+5x2−8x3=94x1+2x2+3x3=1

Question No:49 **(Marks:1)** **Vu-Topper RM**

Which of the following rearrangement make strictly diagonal dominant, the system of linear equations; x-3y+z= –2, –6x+4y+11z=1, 5x–2y–2z=9?

A. 5x–2y–2z=9, x–3y+z= –2, –6x+4y+11z=1

B. 5x–2y–2z=9, –6x+4y+11z=1, x–3y+z= –2

C. No need to rearrange as system is already in diagonal dominant form.

D. –6x+4y+11z=1, x–3y+z= –2, 5x–2y–2z=9

Question No:50 **(Marks:1)** **Vu-Topper RM**

How many Eigen values will exist corresponding to the function; Exp(ax) = e^ax, when the matrix operator is of differentiation?

A. Infinite many

B. Unique

C. None

D. Finite Multiple

Question No:51 **(Marks:1)** **Vu-Topper RM**

Jacobi’s method is highly recommended for ………… matrix to compute all the Eigen values and the corresponding eigenvectors.

A. None of the given choices

B. non real symmetric

C. real un-symmetric

D. real symmetric

Question No:52 **(Marks:1)** **Vu-Topper RM**

For a function; y=f(x), if y0, y1 and y2 are 2,3 and 5 respectively then which of the following will be 2nd order Leading difference at y0 = 2 ?

A. 2
B. -1
C. -2
D. 1

Question No:53 **(Marks:1)** **Vu-Topper RM**

Direct methods can be more rapid than iterative algorithms.

A. True
B. false

Question No:54 **(Marks:1)** **Vu-Topper RM**

If the product of two matrices is an identity matrices that is AB = I, then which of the following is true?

A. B is singular
B. A is singular
C. A is inverse of B
D. A is transpose of B

Question No:55 **(Marks:1)** **Vu-Topper RM**

A and its transpose matrix have _______ eigenvalues.

A. Same
B. different

Question No:56 **(Marks:1)** **Vu-Topper RM**

For differences methods we require the initial approximation.

A. true
B. false

Question No:57 **(Marks:1)** **Vu-Topper RM**

While solving a system of linear equations, which of the following approach is economical for the computer memory?

A. Direct
B. Iterative **Page 69**
C. Analytical
D. Graphical

Question No:58 **(Marks:1)** **Vu-Topper RM**

If n x n matrices A and B are similar, then they have the _____ eigenvalues (with the same multiplicities).

A. True
B. False

Question No:59 **(Marks:1)** **Vu-Topper RM**

The basic idea of relaxation method is to reduce the largest residual to ………….

A. One
B. Five
C. Two
D. Zero **Page 83**

Question No:60 **(Marks:1)** **Vu-Topper RM**

The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeros along its ________.

A. Main diagonal **Page 104**
B. last column
C. last row
D. first row

Question No:61 **(Marks:1)** **Vu-Topper RM**

If A is a nxn triangular matrix (upper triangular, lower triangular) or diagonal matrix , the eigenvalues of A are the diagonal entries of A.

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A. **TRUE**
B. FALSE

Question No:62 **(Marks:1)** **Vu-Topper RM**
A 3 x 3 identity matrix have three and different eigen values.
A. TRUE
B. **FALSE**

Question No:63 **(Marks:1)** **Vu-Topper RM**
Which of the following is a reason due to which the LU decomposition of the system of linear equations; x+y = 1, x+y =2 is not possible?
A. Associated coefficient matrix is singular
B. All values of l's and u's can't be evaluated
C. Determinant of coefficient matrix is zero
D. **All are equivalent**

Question No:64 **(Marks:1)** **Vu-Topper RM**
Gauss - Jordan Method is similar to ……….
A. Gauss–Seidel method
B. Iteration's method
C. Relaxation Method
D. **Gaussian elimination method** **Page 95**

Question No:65 **(Marks:1)** **Vu-Topper RM**
While using Relaxation method, which of the following is the largest Residual for 1st iteration on the system; 2x+3y = 1, 3x +2y = - 4 ?
A. 3
B. **-4**
C. 2
D. 1

Question No:66 **(Marks:1)** **Vu-Topper RM**
Gauss–Seidel method is also known as method of …………….

A. **Successive displacement** **Page 263**
B. Iterations
C. False position
D. None of the given choices

Question No:67 **(Marks:1)** **Vu-Topper RM**
Jacobi's Method is a/an………………
A. **Iterative method** **Page 69**
B. Direct method

Question No:68 **(Marks:1)** **Vu-Topper RM**
The characteristics polynomial of a 3x 3 identity matrix is __________, if x is the eigen values of the given 3 x 3 identity matrix. where symbol ^ shows power.
A. (x-1)^3
B. (x+1)^3
C. **x^3-1**
D. x^3+1

Question No:69 **(Marks:1)** **Vu-Topper RM**
In …………… method, a system is reduced to an equivalent diagonal form using elementary transformations.
A. Jacobi's
B. Gauss-Seidel
C. Relaxation
D. **Gaussian elimination** **Page 262**

Question No:70 **(Marks:1)** **Vu-Topper RM**
The linear equation: 0x+0y =2 has -------- solution/solutions.
A. **Unique** **Page 48**
B. no solution
C. infinite many
D. finite many

Question No:71 **(Marks:1)** **Vu-Topper RM**

Under elimination methods, we consider, Gaussian elimination and ……………methods.

A. Gauss-Seidel
B. Jacobi
C. **Gauss-Jordan elimination** **Page 48**
D. None of the given choices

Question No:72 **(Marks:1)** **Vu-Topper RM**

Which of the following method is not an iterative?

A. Gauss–Seidel method
B. Iteration's method
C. Gauss Jordan method
D. Relaxation Method

Question No:73 **(Marks:1)** **Vu-Topper RM**

An eigenvector V is said to be normalized if the coordinate of largest magnitude is equal to zero.

A. TRUE
B. **FALSE** **Page 97**

Question No:74 **(Marks:1)** **Vu-Topper RM**

When the condition of diagonal dominance becomes true in Jacobi's Method.Then its means that the method is …………….

A. Stable
B. Unstable
C. Convergent **Page 70**
D. Divergent

Question No:75 **(Marks:1)** **Vu-Topper RM**

Gauss–Seidel method is similar to ……….

A. Iteration's method

B. Regula-Falsi method
C. Jacobi's method
D. None of the given choices **Page 263**

Question No:76 **(Marks:1)** **Vu-Topper RM**
Sparse matrices arise in computing the numerical solution of …………….

A. Ordinary differential equations
B. Partial differential equations **Page 69**
C. Linear differential equations
D. Non-linear differential equations

Question No:77 **(Marks:1)** **Vu-Topper RM**
While solving by Gauss-Seidel method, which of the following is the first Iterative solution for the system; x-2y =1, x+4y=4 ?

A. (1, 0.75)
B. (0,0)
C. (1,0)
D. (0,1)

Question No:78 **(Marks:1)** **Vu-Topper RM**
While solving a system of linear equations by Gauss Jordon Method, after all the elementary row operations if there lefts also zeros on the main diagonal then which of the is true about the system?

A. System may have unique solutions
B. System has no solution
C. System may have multiple numbers of finite solutions
D. System may have infinite many solutions

Question No:79 **(Marks:1)** **Vu-Topper RM**
Numerical methods for finding the solution of the system of equations are classified asdirect and ………… methods

A. Indirect

B. Iterative Page 48
C. Jacobi
D. None of the given choices

Question No:80 (Marks:1) Vu-Topper RM

If the Relaxation method is applied on the system; 2x+3y = 1, 3x +2y = -4, then largest residual in 1st iteration will reduce to ---------.

A. Zero
B. 4
C. -1
D. -1

Question No:81 (Marks:1) Vu-Topper RM

While using Relaxation method, which of the following is the Residuals for 1st iteration on the system; 2x+3y = 1, 3x +2y =4 ?

A. (2,3)
B. (3,-2)
C. (-2,3)
D. (1,4)

Question No:82 (Marks:1) Vu-Topper RM

While solving the system; x–2y = 1, x+4y = 4 by Gauss-Seidel method, which of the following ordering is feasible to have good approximate solution?

A. x+4y = 1, x-2y = 4
B. x+2y = 1, x- 4y =4
C. x+4y = 4, x–2y = 1
D. **No need to reordering**

Question No:83 (Marks:1) Vu-Topper RM

While solving the system; x–2y = 1, x+4y = 4 by Gauss-Seidel method, which of the following ordering is feasible to have good approximate solution?

A. **Complicated** **Page 51**
B. Easiest

Question No:84 **(Marks:1)** **Vu-Topper RM**
Full pivoting, in fact, is more ……………than the partial pivoting.
A. Easiest
B. Complicated **Page 51**

Question No:85 **(Marks:1)** **Vu-Topper RM**
If n x n matrices A and B are similar, then they have the different eigenvalues (with the same multiplicities).
A. TRUE
B. **FALSE**

Question No:86 **(Marks:1)** **Vu-Topper RM**
The Jacobi's method is a method of solving a matrix equation on a matrix that has ____ zeros along its main diagonal.
No **Page 892**
At least one

Question No:87 **(Marks:1)** **Vu-Topper RM**
The Gauss-Seidel method is applicable to strictly diagonally dominant or symmetric ________ definite matrices A.
A. Positive
B. negative

Question No:88 **(Marks:1)** **Vu-Topper RM**
Differences methods find the ________ solution of the system.
A. Numerical
B. Analytical

Question No:89 **(Marks:1)** **Vu-Topper RM**
A 3 x 3 identity matrix have three and __________eigen values.

A. **Same**
B. different

Question No:90 **(Marks:1)** **Vu-Topper RM**
Eigenvalues of a symmetric matrix are all _________.
A. complex
B. zero
C. **Real** **Page 104**
D. positive

Question No:91 **(Marks:1)** **Vu-Topper RM**
The Jacobi iteration converges, if A is strictly diagonally dominant.
A. **TRUE** **Page 69**
B. FALSE

Question No:92 **(Marks:1)** **Vu-Topper RM**
Below are all the finite difference methods EXCEPT _________.
A. jacobi's method
B. **Newton's backward difference method**
C. Stirlling formula
D. Forward difference method

Question No:93 **(Marks:1)** **Vu-Topper RM**
Two matrices with the same characteristic polynomial need not be similar.
A. **TRUE**
B. FALSE

Question No:94 **(Marks:1)** **Vu-Topper RM**
The determinant of a diagonal matrix is the product of the diagonal elements.
A. **TRUE**
B. FALSE

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Question No:95 **(Marks:1)** **Vu-Topper RM**

The Gauss-Seidel method is applicable to strictly diagonally dominant or symmetric positive definite matrices A.

A. **TRUE**
B. FALSE

Question No:96 **(Marks:1)** **Vu-Topper RM**

The determinant of a _______ matrix is the product of the diagonal elements.

A. **Diagonal** **Page 70**
B. Upper triangular
C. Lower triangular
D. Scalar

Question No:97 **(Marks:1)** **Vu-Topper RM**

For differences methods we require the set of values.

A. **TRUE**
B. FALSE

Question No:98 **(Marks:1)** **Vu-Topper RM**

Central difference method seems to be giving a better approximation, however it requires more computations.

A. **True** **Page 71**
B. False

Question No:99 **(Marks:1)** **Vu-Topper RM**

Iterative algorithms can be more rapid than direct methods.

A. **TRUE**
B. FALSE

Question No:100 **(Marks:1)** **Vu-Topper RM**

Central Difference method is the finite difference method.

A. **TRUE**

B. FALSE

Question No:101 **(Marks:1)** **Vu-Topper RM**
The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeros along its main diagonal.

A. TRUE
B. **FALSE** **Page 892**

Question No:102 **(Marks:1)** **Vu-Topper RM**
Power method is applicable if the eigen vectors corresponding to eigen values are linearly independent.

A. **TRUE** **Page 102**
B. FALSE

Question No:103 **(Marks:1)** **Vu-Topper RM**
Power method is applicable if the eigen values are _______________.

A. **Real and Distinct** **Page 102**
B. real and equal
C. positive and distinct
D. negative and distinct

Question No:104 **(Marks:1)** **Vu-Topper RM**
For the system of equations; x =2, y=3. The inverse of the matrix associated with its coefficients is-----------.

A. non singular
B. non identity
C. of order 1*1
D. singular

Question No:105 **(Marks:1)** **Vu-Topper RM**
For two matrices A and B, such that "A = Inverse of B", then which of the following is true?

A. B=Inverse of A

B. A and B are not-singular
C. AB=Identity Matrix
D. **All choice is true**

Question No:106 **(Marks:1)** **Vu-Topper RM**
If a system of equations has a property that each of the equation possesses one large coefficient and the larger coefficients in the equations correspond to different unknowns in different equations, then which of the following iterative method id preferred to apply?
A. Gauss-Seidel method
B. Gauss-Jordon method
C. **Gauss elimination**
D. Croat's method

Question No:107 **(Marks:1)** **Vu-Topper RM**
Two matrices with the _______ characteristic polynomial need not be similar.
A. **Same**
B. different

Question No:108 **(Marks:1)** **Vu-Topper RM**
Gauss elimination and Gauss-Jordan methods are popular among many methods for finding the ………of a matrix.
A. Identity
B. Transpose
C. **Inverse**
D. None of the given choices

Question No:109 **(Marks:1)** **Vu-Topper RM**
In Gauss-Seidel method, each equation of the system is solved for the unknown with -------- coefficient, in terms of remaining unknowns.
A. **Largest**
B. Smallest

C. Any positive
D. any negative

Question No:110 **(Marks:1)** **Vu-Topper RM**
Power method is applicable if the Eigen values are real and distinct.
A. **False** **Page 102**
B. True

Question No:111 **(Marks:1)** **Vu-Topper RM**
The Power method can be used only to find the eigenvalue of A that is largest in absolute value—we call this eigenvalue the dominant eigenvalue of A.
A. False
B. **True**

Question No:112 **(Marks:1)** **Vu-Topper RM**
The dominant or principal eigenvector of a matrix is an eigenvector corresponding to the eigenvalue of largest magnitude (for real numbers, largest absolute value) of that matrix.
A. False
B. **True**

Question No:113 **(Marks:1)** **Vu-Topper RM**
The Jacobi iteration ______, if A is strictly diagonally dominant.
A. **Converges**
B. diverges

Question No:114 **(Marks:1)** **Vu-Topper RM**
By using determinants, we can easily check that the solution of the given system of linear equation exits and it is unique.
A. False
B. **True**

Question No:115 **(Marks:1)** **Vu-Topper RM**

The dominant eigenvector of a matrix is an eigenvector corresponding to the eigenvalue of largest magnitude (for real numbers, smallest absolute value) of that matrix.

A. **False**
B. True

Question No:116 **(Marks:1)** **Vu-Topper RM**

The absolute value of a determinant (|detA|) is the product of the absolute values of the eigenvalues of matrix A

A. False
B. **True**

Question No:117 **(Marks:1)** **Vu-Topper RM**

Eigenvectors of a symmetric matrix are orthogonal, but only for distinct eigenvalues.

A. **False**
B. True

Question No:118 **(Marks:1)** **Vu-Topper RM**

6.Let A be an n ×n matrix. The number x is an eigenvalue of A if there exists a non-zero vector v such that Av = xv

A. Av = xv
B. **Ax = xv**
C. Av + xv=0
D. Av = Ax

Question No:119 **(Marks:1)** **Vu-Topper RM**

In Jacobi's Method, the rate of convergence is quite _______ compared with other methods.

A. **Slow**
B. Fast

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Question No:120 **(Marks:1)** **Vu-Topper RM**

Numerical solution of 2/3 up to four decimal places is ________.

A. 0.667
B. 0.6666
C. **0.6667**
D. 0.66667

Question No:121 **(Marks:1)** **Vu-Topper RM**

If the order of coefficient matrix corresponding to system of linear equations is 3*3 then which of the following will be the orders of its decomposed matrices; 'L' and 'U'?

A. Order of 'L' = 3*1, Order of 'U' = 1*3
B. Order of 'L' = 3*2, Order of 'U' = 2*3
C. **Order of 'L' = 3*3, Order of 'U' = 3*3**
D. Order of 'L' = 3*4, Order of 'U' = 4*3

Question No:122 **(Marks:1)** **Vu-Topper RM**

Let A be an n ×n matrix. The number x is an eigenvalue of A if there exists a non-zero vector v such that _______.

A. Av = xv
B. Av + xv=0
C. Av = Ax1
D. **Av = λv**

Question No:123 **(Marks:1)** **Vu-Topper RM**

By using determinants, we can easily check that the solution of the given system of linear equation ______ and it is ______.

A. **Exits, unique**
B. Exists, consistent
C. Trivial, unique
D. Non trivial, inconsistent

Question No:124 **(Marks:1)** **Vu-Topper RM**

In ……………… method, the elements above and below the diagonal are simultaneously made zero.

A. Jacobi's
B. Gauss-Seidel
C. **Gauss–Jordon Elimination** **Page 59**
D. Relaxation

Question No:125 **(Marks:1)** **Vu-Topper RM**

Which of the following is equivalent form of the system of equations in matrix form; AX=B ?

A. XA = B
B. **X = B (Inverse of A)**
C. X = (Inverse of A)B
D. BX = A

Question No:126 **(Marks:1)** **Vu-Topper RM**

Sparse matrix is a matrix with ………

A. Some elements are zero
B. **Many elements are zero** **Page 69**
C. Some elements are one
D. Many elements are one

Question No:127 **(Marks:1)** **Vu-Topper RM**

How many Eigen vectors will exist corresponding to the function; Exp(ax) = e^ax, when the matrix operator is of differentiation?

A. None
B. Infinite many
C. Finite Multiple
D. Unique

Question No:128 **(Marks:1)** **Vu-Topper RM**

Which of the following is the meaning of partial pivoting while employing the row transformations?

A. **Making the largest element as pivot** **Page 50**
B. Making the smallest element as pivot
C. Making any element as pivot
D. Making zero elements as pivot

Question No:129 **(Marks:1)** **Vu-Topper RM**

Differences methods are iterative methods.

A. False
B. **True**

Question No:130 **(Marks:1)** **Vu-Topper RM**

Eigenvalues of a _________ matrix are all real.

A. **Symmetric**
B. Anti-symmetric
C. Rectangular
D. Triangular

Question No:131 **(Marks:1)** **Vu-Topper RM**

For the system; 2x+3y = 1, 3x +2y = - 4, if the iterative solution is (0,0) and 'dxi = 2' is the increment in 'y' then which of the following will be taken as next iterative solution?

A. (2,0)
B. (0,3)
C. **(0,2)**
D. (1,-4)

Question No:132 **(Marks:1)** **Vu-Topper RM**

While using Relaxation method, which of the following is increment 'dxi'corresponding to the largest Residual for 1st iteration on the system; 2x+3y = 1, 3x +2y = - 4 ?

A. -2
B. 4
C. **2**
D. 3

Question No:133 (Marks:1) Vu-Topper RM

If system of equations is inconsistent then its means that it has ………

A. **No Solutions**
B. Many solutions Infinite
C. Many solutions
D. None of the given choices

Question No:134 (Marks:1) Vu-Topper RM

Relaxation Method is a/an ……….

A. Direct method
B. **Iterative method**

Question No:135 (Marks:1) Vu-Topper RM

The eigenvectors of a square matrix are the non-zero vectors that, after being multiplied by the matrix, remain …………… to the original vector.

A. Perpendicular
B. **Parallel**
C. Diagonal
D. None of the given choices

Question No:136 (Marks:1) Vu-Topper RM

In Jacobi's method after finding D1, the sum of the diagonal elements of D1 should be ………… to the sum of the diagonal elements of the original matrix A.

A. Greater than
B. Less than
C. **Same** **Page 106**

D. Different

Question No:137 (Marks:1) Vu-Topper RM

Power method is applicable if the eigen vectors corresponding to eigen values are linearly _______.

A. **Independent**

B. Dependent

Question No:138 (Marks:1) Vu-Topper RM

In Jacobi's Method, We assume that the ………..elements does not vanish.

A. Diagonal

B. Off-diagonal

C. Row

D. Column

Question No:139 (Marks:1) Vu-Topper RM

Back substitution procedure is used in ……………

A. Gaussian Elimination Method

B. Jacobi's method

C. Gauss-Seidel method

D. None of the given choices

Question No:140 (Marks:1) Vu-Topper RM

For the equation X^3 +3x-1=0the root of the equation lies in the interval…

A. (1, 3)

B. (1, 2)

C. (0, 1)

D. (1, 2)

Question No:141 (Marks:1) Vu-Topper RM

lines in the category of iterative method.

A. Bisection Method
B. Regula Falsi Method
C. Secant Method
D. **All** **Page 8**

Question No:142 **(Marks:1)** **Vu-Topper RM**
Bisection and false position methods are also known as bracketing method and are always
A. Divergent
B. **Convergent** **Page 26**

Question No:143 **(Marks:1)** **Vu-Topper RM**
In interpolation is used to represent the δ Forward difference Δ
A. **Central difference** **Page 117**
B. Backward difference

Question No:144 **(Marks:1)** **Vu-Topper RM**
Bisection method is … method
A. Open Method
A. **Bracketing Method** **Page 26**

Question No:145 **(Marks:1)** **Vu-Topper RM**
Simpson's rule is a numerical method that approximates the value of a definite integral by using polynomials.
A. **Quadratic** **Page 174**
B. Linear
C. Cubic
D. Quartic

Question No:146 **(Marks:1)** **Vu-Topper RM**
The predictor-corrector method an implicit method. (multi-step methods)
A. **TRUE** **Page 212**
B. FALSE

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Question No:147 **(Marks:1)** **Vu-Topper RM**

The Trapezoidal rule is a numerical method that approximates the value of a.______________.

A. Indefinite integral
B. **Definite integral** **Page 176**
C. Improper integral
D. Function

Question No:148 **(Marks:1)** **Vu-Topper RM**

While using Relaxation method, which of the following is the Residuals for 1st iteration on the system; 2x 3y = 1, 3x 2y =4 ?

A. **(2,3)**
B. (1,4)
C. (4,4)
D. (3,4)

Question No:149 **(Marks:1)** **Vu-Topper RM**

The number of significant digits in the number 608.030060 is:

A. 7
B. 8
C. **9**
D. 1

Question No:150 **(Marks:1)** **Vu-Topper RM**

Which of the following method is simplest one to integrate numerically a given tabular function but give more error?

A. Rectangular method
B. **Trapezoidal method**
C. Simpson's 1/3 Rule
D. Simpson's 3/8 Rule

Question No:151 **(Marks:1)** **Vu-Topper RM**

At which of the following points the Minimum value of 2nd derivative of function f(x) = -(2/x) in the interval: [1,4] exits?

A. **At x=1**
B. At x=2
C. At x=3
D. At x=4

Question No:152 **(Marks:1)** **Vu-Topper RM**

The Gaussian elimination method fails if any one of the pivot elements becomes………?

A. **Zero**
B. One
C. Two
D. Five

Question No:153 **(Marks:1)** **Vu-Topper RM**

Power method is applicable if the Eigen vectors corresponding the Eigen values are linearly

A. Dependent
B. **Independent**

Question No:154 **(Marks:1)** **Vu-Topper RM**

Eigen values of a__________ matrix are all real.

A. Antisymmetric
B. **Symmetric**
C. Rectangular
D. Triangular

Question No:155 **(Marks:1)** **Vu-Topper RM**

The Trapezoidal Rule is an improvement over using rectangles because we have much less "missing" from our calculations. We used ________ to model the curve in trapezoidal Rule.

A. **Straight lines**
B. curves
C. parabolas
D. constant

Question No:156 (Marks:1) Vu-Topper RM
Euler's Method numerically computes the approximate ________ of a function.
A. **Antiderivative**
B. Derivative
C. Error
D. Value

Question No:157 (Marks:1) Vu-Topper RM
If we wanted to find the value of a definite integral with an infinite limit, we can instead replace the infinite limit with a variable, and then take the limit as this variable goes to _________.
A. Constant
B. Finite
C. **Infinity**
D. Zero

Question No:158 (Marks:1) Vu-Topper RM
Generally, Adams methods are superior if output at _____ points is needed.
A. **Many**
B. Two
C. Single
D. At most

Question No:159 (Marks:1) Vu-Topper RM
Symbol used for forward differences is
A. ∇

B. Δ **Page 12**
C. δ
D. μ

Question No:160 (Marks:1) Vu-Topper RM
The relationship between central difference operator and the shift operator is given by
A. $\delta = E - E^{-1}$
B. $\delta = E + E^{-1}$
C. δ =E1/2+E-1/2
D. **δ =E1/2-E-1/2** **Page 152**

Question No:161 (Marks:1) Vu-Topper RM
Muller's method requires --------starting points
A. 1
B. **3** **Page 41**
C. 2
D. 4

Question No:162 (Marks:1) Vu-Topper RM
If we retain r+1 terms in Newton's forward difference formula, we obtain a polynomial of degree ---- agreeing with y_x at x_0, x_1, ………. X_n.
A. r+2
B. **r**
C. r+1
D. r-1

Question No:163 (Marks:1) Vu-Topper RM
Octal number system has the base ---------------
A. 2
B. 10
C. **8**
D. 16

Question No:164 **(Marks:1)** **Vu-Topper RM**

Rate of change of any quantity with respect to another can be modeled by

A. **An ordinary differential equation**
B. A partial differential equation
C. A polynomial equation
D. None of the given choices

Question No:165 **(Marks:1)** **Vu-Topper RM**

Adam-Moulton P-C method is derived by employing

A. **Newton's backward difference interpolation formula**
B. Newton's forward difference interpolation formula
C. Newton's divided difference interpolation formula
D. None of the given choices

Question No:166 **(Marks:1)** **Vu-Topper RM**

Newton Raphson method is ……………….. method

A. Bracketing Method
B. **Open**
C. Random
D. none

Question No:167 **(Marks:1)** **Vu-Topper RM**

Eigenvalue is

A. **Real**
B. Vector
C. odd
D. even

Question No:168 **(Marks:1)** **Vu-Topper RM**

If f (x) contains trigonometric, exponential or logarithmic functions then this equation is known as

A. **Transcendental equation**

B. Algebraic
C. Polynomial
D. Linear

Question No:169 **(Marks:1)** **Vu-Topper RM**

P in Newton's forward difference formula is defined as

A. **P=(x-x0)/h**
B. P=(x+x0/h
C. P=$(x+x_n)$/h
D. P=$(x-x_n)$/h

Question No:170 **(Marks:1)** **Vu-Topper RM**

Newton's divided difference interpolation formula is used when the values of the are

A. **Equally spaced**
B. Not equally spaced
C. Constant
D. None of the above

Question No:171 **(Marks:1)** **Vu-Topper RM**

If the root of the given equation lies between a and b, then the first approximation to the root of the equation by bisection method is

A. **a+b/2**
B. a-b/2
C. b-a/2
D. None of the given options

Question No:172 **(Marks:1)** **Vu-Topper RM**

If the determinant of a matrix A is not equal to zero then the system of equations will have……….

A. **A unique solution**
B. Many solutions
C. Infinite many solutions

D. None of the given choices

Question No:173 **(Marks:1)** **Vu-Topper RM**

For a system of linear equations, the corresponding coefficient matrix has the value of determinant; |A| = 0, then which of the following is true?

A. The system has unique solution
B. The system has finite multiple solutions
C. The system has infinite may solutions
D. The system has no solution **Page 48**

Question No:174 **(Marks:1)** **Vu-Topper RM**

In Jacobi method we assume that the____________ element does not vanish

A. Diagonal
B. off – Diagonal
C. Row
D. Column

Question No:175 **(Marks:1)** **Vu-Topper RM**

The liner equation: 0x+0y = 2 has _______ solution

A. unique
B. No solution
C. infinite many
D. finite many

Question No:176 **(Marks:1)** **Vu-Topper RM**

When the condition of diagonal dominance become true in Jacobi method then it’s means that the method is

A. stable
B. un- stable
C. Convergent
D. Divergent

Question No:177 **(Marks:1)** **Vu-Topper RM**

If one root of the equal is 3-7i, then the other root will be

A. -3-7i
B. **-3+7i**
C. 3-7i
D. 3+7i

Question No:178 **(Marks:1)** **Vu-Topper RM**

The number system that has a base 2 is called...system.

A. octal
B. **Binary**
C. Decimal
D. Hexadecimal

Question No:179 **(Marks:1)** **Vu-Topper RM**

Which method required is derivative of that solution

A. Bisection method
B. Regular falsi method
C. Muller method
D. **Newton Raphson method**

Question No:180 **(Marks:1)** **Vu-Topper RM**

If the Relaxation method is applied on the system 2x+3y=1 3x+2y=-4 then largest residual in 1^{st} iteration will reduce to

Select the correct option

A. **Zero**
B. 4
C. -1
D. -1

Question No:181 **(Marks:1)** **Vu-Topper RM**

In Gauss Seidel method each equation of the system is solved for the unknown with _ coefficient in terms of remaining unknown

A. smallest
B. **largest**
C. any largest
D. any negative

Question No:182 **(Marks:1)** **Vu-Topper RM**
Which method is required a derivative of a solution?
A. Regular falsi method
B. **Neuton Raphson method**
C. Muller method
D. Bisection method

Question No:183 **(Marks:1)** **Vu-Topper RM**
With the initial vector (0;0;0;) the residual would be
A. R1 = 2, R2 = 1, R3 = 1
B. R1 = 1, R2 = 3, R3 = 2
C. **R1 = 5, R2 = 9, R3 = 2**
D. R1 = 3, R2 = 2, R3 = 1

Question No:184 **(Marks:1)** **Vu-Topper RM**
In full providing we interchange rows and columns such that the element in the matrix of the variable also get charged
A. **largest**
B. Middle
C. smallest
D. none of the given choice

Question No:185 **(Marks:1)** **Vu-Topper RM**
For the system 2x+3y=1 3x + 2y =-4 if the iterative solution is (0 ; 0,) and dxi =2 is the increment in y then which of the following will bi taken as next iterative so
A. (0;3)
B. **(0;2)**

C. (1;4)
D. (2;0)

Question No:186 **(Marks:1)** **Vu-Topper RM**
If the determinant of the matrix A is equal to zero then the system of equation will have ….

A. **No solution or infinitely many solution**
B. unique solution
C. infinite many solution
D. no solution