QUIZ

Started on	Wednesday, 17 May 2023, 12:30 PM
State	Finished
Completed on	Wednesday, 17 May 2023, 1:05 PM
Time taken	34 mins 56 secs
Marks	19/25
Grade	**23** out of 30 (**76**%)

Question 1

Correct

Mark 1 out of 1

The bisection method of finding roots of non linear equations falls under the category of an -------- method

Select one:

- a. open
- b. Graphical
- c. both an iterative method and a bracketing ✔
- d. random
- e. None of Them

Your answer is correct.

The correct answer is: both an iterative method and a bracketing

Question 2

Incorrect

Mark 0 out of 1

The Det of a matrix M= $\begin{bmatrix} 0 & 4 & 0 \\ 2 & 50 & 2 \\ 1 & -2 & -8 \end{bmatrix}$

a. -54

b. 0

c. 72

d. -72 ✖

e. None of them

Your answer is incorrect.

The correct answer is:
72

Question 3

Correct

Mark 1 out of 1

In Gauss Elimination Method, the augmented matrix for the following system is:

$$6x - 3y + 12z = -9$$
$$3x - 6y - 30 = -18$$
$$3x + 4z = 7$$

$$\begin{bmatrix} 6 & -3 & 12 & -9 \\ 3 & -6 & -30 & -18 \\ 3 & 0 & 4 & 7 \end{bmatrix}$$

Select one:

- True ✔
- False

The correct answer is 'True'.

Question 4

Correct

Mark 1 out of 1

given the following equation

X has the following solutions:

$$x^2 = 16$$

a. No Solution

b. (+4,-2)

c. (+2,-4)

d. (+4,-4) ✔

Your answer is correct.

The correct answer is:
(+4,-4)

Question 5

Correct

Mark 1 out of 1

The dimensions of the following matrix are $n \times m$.

$$\begin{bmatrix} a_{11} & a_{12}\dots & a_{ij} & a_{in} \\ a_{21} & a_{22}\dots & a_{ij} & a_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ a_{m1} & a_{m2} & a_{ij} & a_{mn} \end{bmatrix}$$

Select one:

- True
- False ✔

The correct answer is 'False'.

Question 6

Correct

Mark 1 out of 1

The Transpose of the following matrix

$$\begin{bmatrix} 1 & 3 & -2 \\ -1 & 7 & 0 \\ 1 & 0 & 8 \end{bmatrix}$$

a. None of them

b. $\begin{bmatrix} 1 & 1 & -2 \\ -1 & 7 & 0 \\ -2 & 0 & 8 \end{bmatrix}$

c. $\begin{bmatrix} 1 & -1 & 1 \\ 3 & 7 & 0 \\ -2 & 0 & 8 \end{bmatrix}$ ✔

d. $\begin{bmatrix} 1 & 1 & -2 \\ 1 & 7 & 0 \\ -2 & 1 & 8 \end{bmatrix}$

Your answer is correct.

The correct answer is:

$$\begin{bmatrix} 1 & -1 & 1 \\ 3 & 7 & 0 \\ -2 & 0 & 8 \end{bmatrix}$$

Question 7

Correct

Mark 1 out of 1

Which of the following matrix is Singular ?

a. $\begin{bmatrix} 31 & 12 \\ 26 & 10 \end{bmatrix}$

b. $\begin{bmatrix} 37 & 12 \\ 51 & 10 \end{bmatrix}$

c. $\begin{bmatrix} 31 & 12 \\ 26 & 8 \end{bmatrix}$

d. $\begin{bmatrix} 3 & 12 \\ 2 & 8 \end{bmatrix}$ ✔

Your answer is correct.

The correct answer is:

$\begin{bmatrix} 3 & 12 \\ 2 & 8 \end{bmatrix}$

Question 8

Incorrect

Mark 0 out of 1

Determine the number of solutions of the linear system:

x – y = 12

x +y = 0

a. infinite solutions ✖

b. two solutions

c. one solution

d. no solution

Your answer is incorrect.

The correct answer is:
one solution

Question 9

Correct

Mark 1 out of 1

Diagonal matrix is a square Matrix is where all elements are zero's except those on the first raw

Select one:

True

False ✔

The correct answer is 'False'.

Question 10

Correct

Mark 1 out of 1

If $\boldsymbol{A} = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, then $\boldsymbol{A}^{-1} = \begin{bmatrix} \frac{d}{|A|} & \frac{-b}{|A|} \\ \frac{-c}{|A|} & \frac{a}{|A|} \end{bmatrix}$

Select one:

- True ✔
- False

The correct answer is 'True'.

Question 11

Incorrect

Mark 0 out of 1

The minor m13 of the matrix A= $\begin{bmatrix} 1 & 0 & 4 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$

a. -2

b. 0

c. 1

d. 2

e. none of them ✖

Your answer is incorrect.

The correct answer is:
0

Question 12

Incorrect

Mark 0 out of 1

the co-factor c12 of the matrix A= $\begin{bmatrix} 1 & -1 \\ 2 & -2 \end{bmatrix}$ is

- a. -1
- b. none of them ✖
- c. 2
- d. 1
- e. -2

Your answer is incorrect.

The correct answer is:

-2

Question 13

Correct

Mark 1 out of 1

The following matrix represents .....

$$\begin{bmatrix} 1 & 7 & 4 & 4 \\ 0 & 1 & 7 & 4 \\ 0 & 0 & 7 & 8 \\ 0 & 0 & 0 & 3 \end{bmatrix}$$

Select one:

- a. Upper triangular matrix ✔
- b. Diagonal matrix
- c. Identity matrix
- d. Lower triangular matrix

Your answer is correct.

The correct answer is: Upper triangular matrix

Question 14

Correct

Mark 6 out of 6

Determine the root of the given equation $x^2-3 = 0$ for $x \in [1, 2]$ using Bisection method

The value of $f(x_1)$ at the first iteration -0.0457 ✗

The value of $f(x_2)$ at the second iteration -0.1523 ✗

The value of $f(x_3)$ at the third iteration -0.359 ✓

The value of $f(x_4)$ at the fourth iteration -0.75 ✗

The value of $f(x_5)$ at the fifth iteration 0.062 ✗

The value of $f(x_6)$ at the sixth iteration 0.0081 ✓

Your answer is correct.

The correct answer is:

Determine the root of the given equation $x^2-3 = 0$ for $x \in [1, 2]$ using Bisection method

The value of $f(x_1)$ at the first iteration [-0.75]

The value of $f(x_2)$ at the second iteration [0.062]

The value of $f(x_3)$ at the third iteration [-0.359]

The value of $f(x_4)$ at the fourth iteration [-0.1523]

The value of $f(x_5)$ at the fifth iteration [-0.0457]

The value of $f(x_6)$ at the sixth iteration [0.0081]

Comment:

Question 15

Correct

Mark 1 out of 1

$$\begin{bmatrix} 3 & -3 \\ -2 & 4 \end{bmatrix}^{-1} =$$

Select one:

a. $\begin{bmatrix} \frac{4}{6} & \frac{3}{6} \\ \frac{2}{6} & \frac{3}{6} \end{bmatrix}$ ✔

b. $\begin{bmatrix} \frac{4}{18} & \frac{3}{18} \\ \frac{2}{18} & \frac{3}{18} \end{bmatrix}$

c. $\begin{bmatrix} \frac{-4}{18} & \frac{3}{18} \\ \frac{2}{18} & \frac{-3}{18} \end{bmatrix}$

d. $\begin{bmatrix} \frac{-4}{6} & \frac{3}{6} \\ \frac{2}{6} & \frac{-3}{6} \end{bmatrix}$

Your answer is correct.

The correct answer is: $\begin{bmatrix} \frac{4}{6} & \frac{3}{6} \\ \frac{2}{6} & \frac{3}{6} \end{bmatrix}$

Question 16

Correct

Mark 1 out of 1

The det of the matrix

$$\begin{bmatrix} 1 & 2 & 3 \\ 0 & 0 & 0 \\ 4 & -1 & -3 \end{bmatrix}$$

Select one:

- a. 2
- b. 0 ✔
- c. 1
- d. -1

Your answer is correct.

The correct answer is: 0

Question 17

Correct

Mark 1 out of 1

Determine the number of solutions of the linear system:

$14x - 5y = 123$

$14x - 5y = 73$

a. no solution ✔

b. one solution

c. infinite solutions

d. none of them

e. two solutions

Your answer is correct.

The correct answer is:
no solution

Question 18

Correct

Mark 1 out of 1

Let:

$$\boldsymbol{A} = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 2 & 3 \end{bmatrix}, \ \boldsymbol{B} = \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix}$$

Then:

$$(\boldsymbol{AB})^T =$$

Select one:

a. $\begin{bmatrix} 1 & 1 & 2 \end{bmatrix}$

b. $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 2 & 3 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix}$

c. $\begin{bmatrix} 2 & 8 \end{bmatrix}$ ✔

d. $\begin{bmatrix} 1 & 0 \\ 1 & 2 \\ 0 & 3 \end{bmatrix}$

Your answer is correct.

The correct answer is: $\begin{bmatrix} 2 & 8 \end{bmatrix}$

Question 19

Incorrect

Mark 0 out of 1

if A, B, C square matrices $B = ACA^{-1}$ *then* $\det(B) =$

Select one:

a. det(A)

b. det(C)

c. neither det(A) nor det(C) ✖

d. det(A) and det(C)

Your answer is incorrect.

The correct answer is: det(C)

Question 20

Incorrect

Mark 0 out of 1

given the following function f(x) on the interval [2,5] the first iteration using the bisection method f(m) is

$5x^2 - 5x + 4$

a. 0.687 ✖

b. Bisection can not be applied

c. 2.25

d. -0.687

e. None of them

Your answer is incorrect.

The correct answer is:
Bisection can not be applied

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