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SASTRA » Numerical & Statistical Analysis



Unit 1 - UNIT - I : Transcendental Polynomial & Simultaneous equations and Interpolations

Course outline

UNIT - I : Transcendental Polynomial & Simultaneous equations and Interpolations ()

- ☒ Lecture 1: Squaring method for complex roots - Muller, Birge-Vieta method (week 1) (unit?unit=1&lesson=2)
- ☐ Lecture 2 Squaring method for complex roots - Graeffe's Root squaring method (week 1) (unit?unit=1&lesson=3)
- ☐ Lecture 3 - Muller, Birge Vieta and Graeffe's root squaring method (week 1) (unit?unit=1&lesson=4)
- ☐ Quiz: Assessment – 1 (assessment?name=16)
- ☐ Lecture 4 : Solution of simultaneous equations – Gauss Jacobi I method (week 2) (unit?unit=1&lesson=5)
- ☐ Lecture 5 - Solution of simultaneous equations - Gauss Seidel method (week 2) (unit?unit=1&lesson=6)
- ☐ Lecture 6 : Problems in Gauss Jacobi and Gauss seidel methods (week 2) (unit?unit=1&lesson=7)
- ☐ Lecture 7 : Finite difference operator – Relation between operators (week 2) (unit?unit=1&lesson=8)
- ☐ Lecture 8 : Finite Difference operator -

Assessment -- 2

The due date for submitting this assignment has passed.

Due on 2023-04-13, 23:59 IST.

As per our records you have not submitted this assignment.

1) The operator E is

- ☐ Forward difference operator
- ☐ Backward difference operator
- ☐ Shifting operator
- ☐ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Shifting operator

1 point

2) When $f(x)=k$ then $\Delta f(x) =$ _____

- ☐ $f(x + k) - f(x)$
- ☐ $f(k) - f(0)$
- ☐ 0
- ☐ 1

No, the answer is incorrect.
Score: 0

Accepted Answers:
0

1 point

3) The formula for $Ef(x)$ is

- ☐ $f(x-h)-f(x+h)$
- ☐ $f(x)-f(x-h)$
- ☐ $f(x+h)$
- ☐ $f(x+h)f(x)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $f(x+h)$

1 point

4) Which of the following is an unit operator

- ☐ 1
- ☐ \bar{N}
- ☐ μ
- ☐ E

No, the answer is incorrect.
Score: 0

Accepted Answers:
1

1 point

5) Find the seventh term of the sequence 2, 9, 28, 65, 126, 217

- ☐ 344
- ☐ 434
- ☐ 443
- ☐ 444

No, the answer is incorrect.
Score: 0

Accepted Answers:
344

1 point

6) Find the first term of the series whose second and subsequent terms are 8, 3, 0, -1, 0,

1 point

problems (week 2) (unit?unit=1&lesson=9)
<input type="radio"/> Quiz: Assessment – 2 (assessment? name=17)
<input type="radio"/> Lecture 9 : Interpolation - Introduction (week 3) (unit? unit=1&lesson=10)
<input type="radio"/> Lecture 10 :Newton's forward and backward Interpolation (week 3) (unit? unit=1&lesson=11)
<input type="radio"/> Lecture 11: Interpolation - problems (week 3) (unit? unit=1&lesson=12)
<input type="radio"/> Quiz: Assessment – 3 (assessment? name=18)
<input type="checkbox"/> UNIT - II : Numerical differentiation and Integration ()
<input type="checkbox"/> UNIT - III : Numerical Solutions of ODE ()
<input type="checkbox"/> UNIT - IV : Statistical distributions and Test of hypothesis ()
<input type="checkbox"/> Unit V : Non- parametric statistical methods & Time series analysis ()

- ☐ 15
☐ 10
☐ 8
☐ 11

No, the answer is incorrect.
Score: 0

Accepted Answers:
15

- 7) Find $y(-1)$ if $y(0) = 2$, $y(1) = 9$, $y(2) = 28$, $y(3) = 65$, $y(4) = 126$ and $y(5) = 217$.

1 point

- ☐ 1
☐ -1
☐ 0
☐ -3

No, the answer is incorrect.
Score: 0

Accepted Answers:
1

- 8) Solve by Gauss-Seidel method: $30x - 2y + 3z = 75$; $x + 17y - 2z = 48$; $x + y + 9z = 15$

1 point

- ☐ $x = 2.58$; $y = 2.798$; $z = 1.069$
☐ $x = 2.5$; $y = 2.824$; $z = 1.667$
☐ $x = 2.05$; $y = 2.84$; $z = 1.7$
☐ $x = 2.55$; $y = 2.84$; $z = 1.72$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $x = 2.58$; $y = 2.798$; $z = 1.069$

- 9) If the system of equations are $5x - y + z = 10$, $2x + 4y + z = 12$ and $x + y + 5z = 1$, then the first iteration values by Gauss-Seidel method are 1 point

- ☐ 2,1,1
☐ 3,2,1
☐ 2,2,-1
☐ 2,2,-0.6

No, the answer is incorrect.
Score: 0

Accepted Answers:
2,2,-0.6

- 10) Comment on the statement: Gauss-Seidel method always converges

1 point

- ☐ True
☐ False
☐ no idea
☐ none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

- 11) Convergence in Gauss-seidel is rapid when compared with convergence in Gauss-Jacobi method

1 point

- ☐ False
☐ Depends on the problem
☐ True
☐ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
True

- 12) Gauss Jacobi method is used to solve

1 point

- ☐ Differential equations
☐ Algebraic equations
☐ system of simultaneous equations
☐ none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
system of simultaneous equations

- 13) Gauss Jacobi's method is known as

1 point

- ☐ Simultaneous displacement method
☐ Displacement method

- ☐ Simultaneous method
- ☐ Displacement method

No, the answer is incorrect.
Score: 0

Accepted Answers:
Simultaneous displacement method

14) Gauss Seidel method is used to solve

1 point

- ☐ system of simultaneous equations
- ☐ algebraic quations
- ☐ Differential equations
- ☐ none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
system of simultaneous equations

15) Gauss-Jacobi method is successful if _____

1 point

- ☐ Large coefficients are not along the leading diagonal of the coefficient matrix
- ☐ no condition on large coefficients of the coefficient matrix
- ☐ Large coefficients are along the leading diagonal of the coefficient matrix
- ☐ None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Large coefficients are along the leading diagonal of the coefficient matrix



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