



Unit 2 - UNIT - II : Numerical differentiation and Integration

Course outline

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

UNIT - II :
Numerical
differentiation and
Integration ()

Lecture 1 : First and second order differentiation - Introduction (week 4) (unit? unit=19&lesson=20)

Lecture 2 : First and second order Differentiation - Newton's , Stirling's and Lagrange's formula(week 4) (unit? unit=19&lesson=21)

Quiz: ASSESSMENT - 4 (assessment? name=89)

Lecture 3 : Differentiation based on finite differences (week 5) (unit? unit=19&lesson=22)

Lecture 4: Solution of ODE by the method of finite differences(week 5) (unit? unit=19&lesson=23)

Lecture 5 :Numerical Integration – Trapezoidal rule (week 5) (unit? unit=19&lesson=24)

Lecture 6: Numerical Integration - Romberg's method (week 5) (unit? unit=19&lesson=25)

Quiz: Assessment – 5 (assessment?)

ASSESSMENT - 4

The due date for submitting this assignment has passed.

Due on 2023-04-19, 23:59 IST.

As per our records you have not submitted this assignment.

1) Interpolation is the process of computing____

1 point

the values outside the interval

intermediate values of a function

both (a) and (b)

none of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
intermediate values of a function

2) If interpolation is required near the middle values of the table, we use

1 point

Stirling's interpolation formula

Bessel's interpolation formula

Both (a) and (b)

Newton's backward formula

No, the answer is incorrect.
Score: 0
Accepted Answers:
Stirling's interpolation formula

3) Find ▼(29) given (3,7);(4,11);(5,16);(6,22) and (7,29)

1 point

4

5

6

7

No, the answer is incorrect.
Score: 0
Accepted Answers:
7

4) Find Δ (7) given (3,7);(4,11);(5,16);(6,22) and (7,29)

1 point

4

5

6

7

No, the answer is incorrect.
Score: 0
Accepted Answers:
4

5) Find the values of y at x = 21 and x = 28 from the following data. y(20) = 0.342, y(23) = 0.3907, y(26) = 0.4384, y(29) = 0.4848

1 point

y(21) = 0.3583, y(28) = 0.4695

y(21) = 0.3538, y(28) = 0.4596

y(21) = 0.5383, y(28) = 0.6495

y(28) = 0.3583, y(21) = 0.4695

No, the answer is incorrect.
Score: 0
Accepted Answers:
y(21) = 0.3583, y(28) = 0.4695

https://online-degree.swayam2.ac.in/sas23_01_d05_s1_cc02/unit?unit=19&assessment=89

1/3

name=30)

- ☐ Lecture 7 : Numerical Integration – Simpson's rule (week 6) (unit? unit=19&lesson=26)
- ☐ Lecture 8 : Numerical Integration - Simpson's rule (cont..) (week 6) (unit? unit=19&lesson=27)
- ☐ Quiz: Assessment – 6 (assessment? name=32)

**UNIT - III :
Numerical
Solutions of ODE**

⊕ ()

**UNIT - IV :
Statistical
distributions and
Test of hypothesis**

⊕ ()

**Unit V : Non-
parametric
statistical
methods & Time
series analysis ()**

⊕ ()

6) Newton forward interpolation formula is used when the interval of difference is

1 point

- ☐ varies
- ☐ constant
- ☐ varies or constant
- ☐ none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
constant

7) Newton backward interpolation formula is used when the interval of differencing is

1 point

- ☐ varies
- ☐ constant
- ☐ varies or constant
- ☐ none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
constant

8) Lagranges interpolation formula is used when the interval of differencing is

1 point

- ☐ varies
- ☐ constant
- ☐ varies or constant
- ☐ none of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
varies

9) The following function(s) can be used for interpolation

1 point

- ☐ trigonometric
- ☐ polynomial
- ☐ exponential
- ☐ All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

10) Find the parabola passing through the points (0, 1), (1, 3), (3, 55) using Lagrange's interpolation formula.

1 point

- ☐ $y = 8x^2 - 6x - 1$
- ☐ $y = 8x^2 + 6x + 1$
- ☐ $y = 8x^2 + 6x - 1$
- ☐ $y = 8x^2 - 6x + 1$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $y = 8x^2 - 6x + 1$

11) The function $y=2x^2+3x+1$ passes through (1,6);(3,28) and (10,231). The process of finding y when x=2 is called

1 point

- ☐ interpolation
- ☐ extrapolation
- ☐ guessing
- ☐ regression

No, the answer is incorrect.
Score: 0

Accepted Answers:
interpolation

12) Given n points and the function $y=f(x)$ passing through all the data points. If the value of $f(x)$ is required for a value of x outside the range of the given data, the procedure is called

1 point

- ☐ interpolation
- ☐ extrapolation
- ☐ guessing
- ☐ regression

No, the answer is incorrect.
Score: 0

Accepted Answers:
extrapolation

13) Find $y(35)$ using Stirling's formula. $y(20) = 512$, $y(30) = 439$, $y(40) = 346$, $y(50) = 243$.

1 point

- ☐ 395

- ☐ 390
☐ 400
☐ 385

No, the answer is incorrect.

Score: 0

Accepted Answers:
395

14) Using central difference formula find $y(1.22)$ given $y(1) = 0.84147$, $y(1.1) = 0.89121$, $y(1.2) = 0.93204$, $y(1.3) = 0.96356$, $y(1.4) = 0.98545$, $y(1.5) = 0.99749$. **1 point**

- ☐ 0.9553
☐ 0.9391
☐ 0.8889
☐ 0.9139

No, the answer is incorrect.

Score: 0

Accepted Answers:
0.9391

15) Using Lagrange's formula find $y(19)$ given that $y(11) = 14646$, $y(17) = 83526$, $y(21) = 194486$, $y(23) = 279846$. **1 point**

- ☐ 130198
☐ 130189
☐ 130891
☐ 130981

No, the answer is incorrect.

Score: 0

Accepted Answers:
130198



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