

X



(/univ_details/SASTRA)

About (/about) | Notifications (/mynotifications) | 23113110286@sastra.ac.in (/profile)

SASTRA » Numerical & Statistical Analysis



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 -- 5

The due date for submitting this assignment has passed.

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

As per our records you have not submitted this assignment.

Trapezoidal rule

- 1) The error in Trapezoidal rule is of order

1 point

- ☐ h
- ☐ square of h
- ☐ cube of h
- ☐ fourth power of h

No, the answer is incorrect.

Score: 0

Accepted Answers:

square of h

- 2) While evaluating the definite integral by Trapezoidal rule, the accuracy can be increased by taking ____

1 point

- ☐ large number of sub-intervals
- ☐ even number of sub-intervals
- ☐ h=4
- ☐ h as a multiple of 3

No, the answer is incorrect.

Score: 0

Accepted Answers:

large number of sub-intervals

- 3) By Romberg method, find the value if integral 0 to 1 $\cos(x^2)$ taking $h = 1/8$ ()

1 point

- ☐ 0.901 ()
- ☐ 0.945 ()
- ☐ 0.9 ()
- ☐ 0.9045 ()

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.9045 ()

- 4) The value of integral of $(\log_e x)$ between 4 and 5.2 using trapezoidal rule is () ()

1 point

- ☐ 1.3585 () ()
- ☐ 1.3693 () ()
- ☐ 1.3788 () ()
- ☐ None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

None of the above

- 5) The value of integral of e^x between 0 and 1 using Trapezoidal rule by $h = 0.2$ will be () ()

1 point

- ☐ 1.3298 () ()
- ☐ 1.3201 () ()
- ☐ 1.7183 () ()
- ☐ 0.3277 () ()

No, the answer is incorrect.

Score: 0

Accepted Answers:

1.7183 () ()

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) The velocity of a particle which starts from rest is given by the following table.

1 point

t (sec) 0 2 4 6 8 10 12 14 16 18 20

v (ft/sec) 0 16 29 40 46 51 32 18 8 3 0 Evaluate using Simpson's 1/3 rule, the total distance traveled in 20 seconds.

- ☐ 494.67
- ☐ 494.76
- ☐ 449.67
- ☐ 449.76

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 494.67

7) The Trapezoidal rule for integral y between x_0 and x_4 is

1 point

- ☐ $\frac{h}{3} \{ y_0 + 2(y_1 + y_2 + y_3) + y_4 \}$.
- ☐ $\frac{h}{2} \{ y_0 + 2y_1 + 4(y_2 + y_3) + y_4 \}$.
- ☐ $\frac{h}{2} \{ y_0 + y_1 + y_2 + y_3 + y_4 \}$.
- ☐ $\frac{h}{2} \{ y_0 + 2(y_1 + y_2 + y_3) + y_4 \}$.

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 $\frac{h}{2} \{ y_0 + 2(y_1 + y_2 + y_3) + y_4 \}$.

8) In deriving trapezoidal formula, the arc of the curve y=f(x) over sub-interval is replaced by its ____.

1 point

- ☐ Straight line.
- ☐ Ellipse
- ☐ Chord
- ☐ Tangent line

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 Chord

9) By putting n=1 in Newton-cote's quadrature formula we get

1 point

- ☐ Trapezoidal rule
- ☐ Simpson's one-third rule
- ☐ Simpson's three-eight rule
- ☐ None of the above

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 Trapezoidal rule

10) If h=0.5, find the area X: 0 0.5 1 and corresponding values of y=f(x):1 0.8 0.5 using trapezoidal rule

1 point

- ☐ 0.757
- ☐ 0.75.
- ☐ 0.775.
- ☐ 0.778

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 0.775.

11) Trapezoidal rule is applicable when number of sub-interval is

1 point

- ☐ multiple of 2
- ☐ multiple of three
- ☐ any positive integer
- ☐ none of the above

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 any positive integer

12) Romberg's method is a methodical enhancement of

1 point

- ☐ Simpson's 1/3rd rule
- ☐ Simpson 3/8th rule
- ☐ Trapezoidal rule
- ☐ None of the above

No, the answer is incorrect.
 Score: 0

Accepted Answers:
 Trapezoidal rule

13) Evaluate integral lower limit 1, upper limit 2 dx / (5 + 3x) using the Simpson's 1/3 rule with 4 and 8 sub intervals.

1 point

- ☐ 0.10156, 0.10156
☐ 0.1156, 0.1156
☐ 0.10615, 0.16015
☐ 0.10615, 0.10615

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.10615, 0.10615

14) $I = \int y dx = y_0 + 2y_1 + 2y_2 + \dots + y_n$ is the formula of integration for

1 point

- ☐ Simpson 1/3rd rule
☐ Simpson's 3/8th rule
☐ Romberg method
☐ Trapezoidal rule

No, the answer is incorrect.

Score: 0

Accepted Answers:

Trapezoidal rule

15) The value of integral of xe^x between 0.2 and 2.2 by the using trapezoidal rule $n = 10$ is most nearly

1 point

0

- ☐ 11.672
☐ 11.807
☐ 20.099
☐ 24.119

No, the answer is incorrect.

Score: 0

Accepted Answers:

11.807



FOLLOW US



(<https://www.facebook.com/swayammoocs/>)



(<https://www.instagram.com/swayammhrd/>)



(<https://twitter.com/SWAYAMMHRD>)

[Privacy Policy \(/privacy_policy\)](#) | [Terms of Use \(/terms_of_use\)](#) | [Honor Code \(/honor_code\)](#)

© 2024 SWAYAM. All rights reserved.

Initiative by : MHRD (Govt of India)