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Unit 2 - UNIT - II : Numerical differentiation and Integration

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 () ()

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***

- h/3 { y_0 +2(y_1+ y_2+ y_3)+ y_4}.
- h/2 { y_0 +2y_1+ 4(y_2+ y_3)+ y_4}.
- h/2 { y_0 +y_1+ y_2+ y_3+ y_4}.
- h/2 { y_0 +2(y_1+ y_2+ y_3)+ y_4}.

No, the answer is incorrect.
Score: 0
Accepted Answers:
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= ∫ ydx = yo + $2y_1$ + $2y_2$ + ... +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**

- 11.672
- 11.807
- 20.099
- 24.119

No, the answer is incorrect.
Score: 0

Accepted Answers:
11.807