x

Unit 3 - UNIT - III : Numerical Solutions of ODE

Assessment -- 9

The due date for submitting this assignment has passed.

Due on 2023-05-21, 23:59 IST.

As per our records you have not submitted this assignment.

1) The number of initial values required for Milne's method *1 point*

- four
- three
- one
- two

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

2) The error in Runge-Kutta second order method is of order *1 point*

- square of h
- cube of h
- h
- 1.63

No, the answer is incorrect.
Score: 0
Accepted Answers:
cube of h

3) Advantages of Runge-Kutta method *1 point*

- Derivatives are required
- easy for computation
- derivatives are not required
- none of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
derivatives are not required

4) If f(x,y)=f(x) in a differential equation, in the Runge Kutta method of fourth order Δy *1 point*

- reduces to area by Simpson's three eight rule
- reduces to area by trapezoidal rule
- reduces to area by Picard's rule
- reduces to area by Simpson's one-third rule

No, the answer is incorrect.
Score: 0
Accepted Answers:
reduces to area by Simpson's one-third rule

5) Which of the following methods does not require starting values *1 point*

- Euler's method
- Milne's method
- Adam's method
- Multi step methods

No, the answer is incorrect.
Score: 0
Accepted Answers:
Multi step methods

6) Runge-Kutta method of second order is the - - - - method *1 point*

- Euler's method
- Taylor's method
- midpoint method
- none of these

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

7) For $y' = y + x$ with $y(0) = 1$ and $h = 0.1$ the value of K_1 in Runge-Kutta fourth order method is - - ***1 point***

- 0.1
- 1,0
- 0.01
- 0.11

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.1

8) In Runge-Kutta fourth order method K_4 = - - - - ***1 point***

- $hf(x_1 + h , y_1 + K_3)$
- $hf(x_1 + h , y_1 + K_2)$
- $hf(x_1 + h , y_1 + K_1)$
- $f(x_1 + h , y_1 + K_3)$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$hf(x_1 + h , y_1 + K_3)$

9) Find y(1) by Milne's method, given that y' = x - y^2, y(0) = 0, y(0.2) = 0.02, y(0.4) = 0.0795, y(0.6) = 0.1762. ***1 point***

- 0.5546
- 0.4556
- 0.4654
- 0.6654

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.4556

10) By Runge-Kutta method solve y' = y^2 + xy, y(1) = 1. find y(1.1). ***1 point***

- 1.4
- 1.2145
- 1.2415
- 1.425

No, the answer is incorrect.
Score: 0
Accepted Answers:
1.2415

11) By Milne's method solve y' = 1 + y^2, y(0.6) = 0.6841, y(0.4) = 0.4228, y(0.2) = 0.2027, y(0) = 0. find y(-0.2). ***1 point***

- -0.02
- -0.3
- -0.2028
- 0

No, the answer is incorrect.
Score: 0
Accepted Answers:
-0.2028

12) Milne's method is a ***1 point***

- single step method
- Multistep method
- series method
- none of the above

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

13) Obtain the values of y at x = 0.1 and 0.2 using R-K fourth order for the differential equation y' = -y, given y(0) = 1. ***1 point***

- y(0.1) = 0.905, y(0.2) = 0.8187
- y(0.1) = 0.95, y(0.2) = 0.887
- y(0.1) = 0.91, y(0.2) = 0.81

- y(0.1) = 0.9, y(0.2) = 0.8

No, the answer is incorrect.
Score: 0
Accepted Answers:
y(0.1) = 0.905, y(0.2) = 0.8187

14) $Using\ R-K\ fourth\ order\ find\ y(0.8)\ correct\ to\ 4\ decimal\ places,\ if\ y' = y - x^2, y(0.6) = 1.7379$ **1 point**

- 2.1
- 2.0145
- 2.451
- 2.5401

No, the answer is incorrect.
Score: 0
Accepted Answers:
2.0145

15) Using R-K fourth order find y(0.2), given that y' = y - x, y(0) = 2 taking h = 0.1. **1 point**

- 2.4
- 2
- 2.421
- 1.242

No, the answer is incorrect.
Score: 0
Accepted Answers:
2.421