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SASTRA » Numerical & Statistical Analysis

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Unit 3 - UNIT - III: Numerical Solutions of ODE

Cou	rse outline	_	
Course outline		Assessment 7	
	UNIT - I : Transcendental Polynomial & Simultaneous	The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.	Due on 2023-05-07, 23:59 IST.
	equations and	Accurate solution in Taylor series method is obtained if the interval of difference h is	1 point
\oplus	Interpolations ()	large	
		on restrictions small	
	UNIT - II :	none of the above	
	Numerical differentiation and	No, the answer is incorrect.	
\oplus	Integration ()	Score: 0 Accepted Answers:	
		small	
	UNIT - III :	2) By taylor's series, what is the value of $y(1.1)$ if $y' = x + y$, $y(1) = 0$	1 point
	Numerical Solutions of ODE	0.01103	
	()	01	
	_	O 0	
	Lecture 1: Solution by Faylor series- First	0 1.1	
	order ODE (week 7)	No, the answer is incorrect. Score: 0	
	unit?	Accepted Answers:	
ι	ınit=34&lesson=35)	0.01103	
a (Lecture 2 Solution by Faylor's series - Second and simultaneous ODEs week 7) (unit? unit=34&lesson=36)	3) If the exact solution of equation $y' = f(x,y)$ with $y(x_0) = y_0$ then Taylor's series exp point $x = x_0$ is $y(x) =$ $y_0 + xy_0' + x^2 y_0'' +$ $y_0 + hy_0' + h^2y_0'' / 2 + h^3y_0''' / 6 +$ $y_0 + hy_0' + h(y_0'')^2 +$	ansion for y(x) about the 1 point
0	ecture 3-Solution of	onone of these	
3	Second order and Simultaneours ODE by Faylor's series nethod(contd.,)(Week	No, the answer is incorrect. Score: 0 Accepted Answers: $y_0 + hy_0' + h^2y_0'''/2 + h^3y_0'''/6 +$	
	7) (unit?	4) Pointwise solution is	1 point
ι	ınit=34&lesson=37)	oseries of points which do not satisfy a pre-assigned but not known particular solution.	
્	Quiz: Assessment – 7	Series of points which satisfy a pre-assigned but not known particular solution	
	assessment?	Series of points which do not satisfy pre-assigned and particular solution none of the above	
	name=45)	No. the answer is incorrect.	
	ecture 4 Solution of First order ODE by	Score: 0	
	Picard's Method (Week	Accepted Answers: Series of points which satisfy a pre-assigned but not known particular solution	
8	3) (unit?	5) Taylor series method will be very useful for approximations.	
ι	ınit=34&lesson=38)		1 point
ା	ecture 5 :Solution by	○ Initial value ○ finial value	
	Picard's method	initial starting value	
	contd) (week 8) (unit? ınit=34&lesson=39)	○ Middle value	
	· · · · · · · · · · · · · · · · · · ·	No, the answer is incorrect.	
	ecture 6 -Solution by Euler's method –	Score: 0 Accepted Answers:	
	mproved and modified	Initial value	
	,		

Euler method (week 8)	The second category methods of solving differential equations is also called	1 point
(unit? unit=34&lesson=40)	pointwise method	
Lecture 7 - Solution by Euler's method – Improved and modified Euler method(cont.,) (Week 8) (unit? unit=34&lesson=41)	step by step method no restriction none of the above No, the answer is incorrect. Score: 0 Accepted Answers: step by step method	
Quiz: Assessment - 8 (assessment? name=47)	7) Find y(0.1) by Taylor's method, given y' - 2y = 3e^x, y(0) = 0. 0 0.359	1 point
Lecture 8 : Runge kutta method for solving First order ODE and Second order ODE (week 9) (unit? unit=34&lesson=42)	0.349 0.394 0.943 No, the answer is incorrect. Score: 0 Accepted Answers: 0.349	
Lecture 9-Runge- Kutta Method (contd.,)(Week 9) (unit? unit=34&lesson=43)	8) Truncation error means difference between exact solution and pointwise solution sum of exact solution and pointwise solution product of exact solution and pointwise solution	1 poin
Lecture 10: Predictor - Corrector Methods (Milne's Method) (Week 9) (unit? unit=34&lesson=44)	none of the above No, the answer is incorrect. Score: 0 Accepted Answers: difference between exact solution and pointwise solution	
Quiz: Assessment - 9 (assessment? name=49)	 9) Using Taylor's method upto 3nd order find y(0.1) given that 8y' - y^2 = x, y(0) = 0.5. 0.517 0.6 	1 point
UNIT - IV : Statistical distributions and Test of hypothesis ①	0.4 0 No, the answer is incorrect. Score: 0 Accepted Answers: 0.517	
Unit V : Non- parametric statistical methods & Time series analysis ()	10) Numerical solution of ordinary differential equations are called 0 Initial value problems () () finial value problems () () boundary value problems numerical problems	1 poin
	No, the answer is incorrect. Score: 0 Accepted Answers: Initial value problems () ()	
	11) method needs former calculations of upper derivatives? Taylor's Euler Adam's Newton's No, the answer is incorrect. Score: 0 Accepted Answers:	1 poin
	Taylor's 12) In a ordinary differential equations the first category methods is Taylor's method Euler Method	1 poin

13) Using Taylor's series method find the value of y at x=0.1 to five decimal places from $y' = ((x^2)y) - 1$, y(0) = 1

Runge-Kutta Method.
Pointwise Method
No, the answer is incorrect.
Score: 0
Accepted Answers:
Taylor's method

1 point

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O 1	
0.90033	
0	
○ 0.1	
No, the answer is incorrect. Score: 0	
Accepted Answers:	
0.90033	
14) Apply Taylor's formula upto order 3 to find y (1.1) given that $y' = x(y^{(1/3)})$, $y(1) = 1$.	1 point
O 1.107	
○ 1.10	
O 1.17	
O 1.2	
No, the answer is incorrect. Score: 0	
Accepted Answers:	
1.107	
15) Using Taylor's method find $y(1.1)$ given that $y' = \log xy$, $y(1) = 2$ upto 3rd order	1 point
○ 2.076	
○ 2.067	
○ 2.67	
○ 2.036	
No, the answer is incorrect.	
Score: 0	
Accepted Answers: 2.036	
2.000	





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