

2/10 Rahim

E

CSE 330 Numerical Methods

Summer 2022

Quiz 1

ANSWER ALL THE QUESTIONS

Time: 20mins

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Section 07

1. C01

Answer the following questions in short. [3X1=3]

- A student suggested that we should always take the maximum value of the exponent for calculating the Machine Epsilon value for normalized number systems. Do you agree with the student? State a reason
- Function $f(x)$ is interpolated by $P_3(x)$. What will be the value of $|f(x) - P_3(x)|$ at the nodal point x_2 ?
- How many significant digits does the floating point number 0.02180×10^{-3} have?

2. CO2

The velocity of a test object is measured at different times using light gate.

	Time (seconds)	x	Velocity (m/s)	$f(x)$
x_0	10		297.5	
x_1	23		390.3	
x_2	30		399.3	
x_3	35		420	

- Using Newton's Divided Difference, construct a polynomial that goes through the above nodes [4]
- Now consider a new node Time = 35 and velocity = 420 m/s. Update your polynomial accordingly. [3]