EXTENSION LECTURER: Dr. B. Madhavi, Asst. Prof of Mathematics

Department of Mathematics, Kakatiya University, WARANGAL

Collaborated with dept of Mathematics, GDC Mahabubabad

Name of the Topic: -" Interpolation Lagrange's interpretation formula

Conducted on 15th Feb 2021 Number of Students attended: 30

Extension Lecture to B. Sc I, II- & III-Year Students.

She has been explained very nicely, and as a result, it will be very helpful to our college students. A few of the important formulas that have been explained are as follows:

Lagrange's Interpolation Formula

Unequally spaced interpolation requires the use of the divided difference formula. It is defined as

$$f(x, x_0) = \frac{f(x) - f(x_0)}{x - x_0} \qquad (1)$$

$$f(x, x_0, x_1) = \frac{f(x, x_0) - f(x_0, x_1)}{x - x_1} \qquad (2)$$

$$f(x, x_0, x_1, x_2) = \frac{f(x, x_0, x_1) - f(x_0, x_1, x_2)}{x - x_2} \qquad (3)$$

From equation (2), the formula can be rewritten as

$$(x - x_1) f(x, x_0, x_1) + f(x_0, x_1) = f(x, x_0) \qquad ,$$

and the substitution of equation (1) yields,

$$(x - x_0)(x - x_1) f(x, x_0, x_1) + (x - x_0) f(x_0, x_1) + f(x_0) = f(x) \qquad .$$

The first term is considered the remainder term as it is not in the difference table, so $f(x)$ can be expressed approximately in terms of the divided differences as

$$f(x) \approx f(x_0) + (x - x_0) f(x_0, x_1) + (x - x_0)(x - x_1) f(x_0, x_1, x_2) \qquad ,$$

a second order formula. The first order formula can be written as

$$f(x) \approx f(x_0) + (x - x_0) f(x_0, x_1) \qquad .$$

The above formulas are the most convenient for numerical computation when the divided differences are store in a matrix form. But actual explicit formulas can be written in terms of the sample function values.

Number of Students attuned: 39

List of Students Attended

Sl. No	Name of the Student	Course and Year
1	**CH. Shailaja**	B.Sc Physical Science III Year
2	**G. Supriya**	B.Sc Physical Science III Year
3	**G. Prakash raj**	B.Sc Physical Science III Year
4	**G.Akhila**	B.Sc Physical Science III Year
5	**L.Mahesh**	B.Sc Physical Science III Year
6	**M. Divya**	B.Sc Physical Science III Year
7	**M. Mallishwari**	B.Sc Physical Science III Year
8	**Md.RIZWAN**	B.Sc Physical Science III Year
9	**M. Sunitha**	B.Sc Physical Science III Year
10	**N.Vishnu**	B.Sc Physical Science III Year
11	**V. Maheshwari**	B.Sc Physical Science III Year
12	**V. Prakash**	B.Sc Physical Science III Year
13	**A. Rakesh**	B.Sc Physical Science III Year
14	**B. Priyanka**	B.Sc Physical Science III Year
15	SHAIK MANISHA	B.Sc Physical Science III Year
16	MADURI RANJITH KUMAR	B.Sc Physical Science III Year
17	GUGULOTH ANIL	B.Sc Physical Science II Year
18	NAVILA AKHILA	B.Sc Physical Science II Year
19	KANDULA RAVALI	B.Sc Physical Science II Year
20	GUGULOTH NANDINI	B.Sc Physical Science II Year
21	AZMEERA ANIL	B.Sc Physical Science II Year
22	NELIGONDA VENNELA	B.Sc Physical Science II Year
23	PONAKA NAVYA	B.Sc Physical Science II Year
24	DHARAVATH RAASHI	B.Sc Physical Science II Year
25	GUGULOTH SURYA PRAKASH	B.Sc Physical Science II Year
26	PANDIRLA RAKESH	B.Sc Physical Science II Year
27	GUGULOTH CHANDRA SEKHAR	B.Sc Physical Science II Year
28	NAVILA AKHILA	B.Sc Physical Science I Year
29	KANDULA RAVALI	B.Sc Physical Science I Year

30	GUGULOTH NANDINI	B.Sc Physical Science I Year
31	AZMEERA ANIL	B.Sc Physical Science Year
32	NELIGONDA VENNELA	B.Sc Physical Science I Year
33	PONAKA NAVYA	B.Sc Physical Science I Year
34	DHARAVATH RAASHI	B.Sc Physical Science I Year
35	GUGULOTH SURYA PRAKASH	B.Sc Physical Science I Year
36	PANDIRLA RAKESH	B.Sc Physical Science I Year
37	GUGULOTH CHANDRA SEKHAR	B.Sc Physical Science I Year
38	ERPA PRAVEEN	B.Sc Physical Science I Year
39	VEMULA LOKESH	B.Sc Physical Science I Year