

## COMPUTATIONAL AND NUMERICAL METHODS

### Lab-6

Date: 10-10-2016

#### Spline Interpolation:

1).

X	1	2	3	5	7	8
F(x)	3	6	19	99	291	444

A) Construct cubic splines for the above data with the condition  $f''(1)=f''(8)=0$ , predict  $f(4)$  and  $f(2.5)$ .

B) Verify that  $f_2(3)=f_3(3)=19$ .

C) Plot the cubic splines in the given interval.

2) Determine quadratic spline and cubic spline to the function  $f(x) = x^4$  in the interval  $[-1,1]$  corresponding to the partition

$$X_0=-1, X_1=0, X_2=1.$$

A) Evaluate the value  $f(0.5)$  in both cases. Compare the error in both the cases.