Assignment 2

Numerical Analysis by Maqsood Alam

Due date: 27/11/2020

Q1:- Consider the following table

|  |  |
| --- | --- |
| *x* | *f(x)* |
| *1940* | *17* |
| *1950* | *20* |
| *1960* | *27* |
| *1970* | *32* |
| *1980* | *36* |
| *1990* | *38* |

1. Approximate value of f(x) when x = 1945 using newton’s forward difference formula.
2. Approximate value of f(x) when x = 1985 using newton’s backward difference formula.
3. Approximate value of f(x) when x = 1964 using guass forward formula.
4. Approximate value of f(x) when x = 1976 using guass backward formula.

Q2:- Consider the following table

|  |  |
| --- | --- |
| *x* | *f(x)* |
| *10* | *0.23967* |
| *11* | *0.28060* |
| *12* | *0.31788* |
| *13* | *0.35209* |
| *14* | *0.38368* |

1. Approximate the value of f(x) when x = 12.2 using guass forward formula.
2. Approximate the value of f(x) when x = 12.2 using guass backward formula.
3. Approximate the value of f(x) when x = 12.2 using stirling’s formula.
4. Approximate the value of f(x) when x = 12.2 using bessel’s formula.

Q3:- Implement the following programs in python

1. Guass backward formula
2. Bessel’s formula
3. Sterling’s formula.

Q4:- Solve Q1 and Q2 using phyton.