Started on	Thursday, 29 October 2020, 12:29 PM
State	Finished
Completed on	Thursday, 29 October 2020, 12:49 PM
Time taken	19 mins 54 secs
Grade	**6.00** out of 10.00 (**60**%)

Question 1

Correct

Mark 1.00 out of 1.00

If $\{x_n\}$ is a sequence converging linearly to a value ξ, then the constant C in $\lim_{n\to\infty} \frac{\xi - x_{n+1}}{(\xi - x_n)^p} = C$ must satisfy

Select one:

- A. $|C| > 1$
- B. $|C| < 1$ ✓
- C. $|C| = 1$
- D. $|C| > \frac{3}{2}$
- E. C can be any real number

Your answer is correct.

The correct answer is: $|C| < 1$

Question 2

Correct

Mark 2.00 out of 2.00

Let x and y be normalized floating-point machine numbers, where $x > y > 0$. If $2^{-p} \leq 1 - (\frac{y}{x}) \leq 2^{-q}$ for some positive integers p and q, then the minimum number of bits of significance that are lost in the subtraction $x - y$ is

Select one:

- A. p
- B. q ✓
- C. $p - q$
- D. $p + q$
- E. pq

Your answer is correct.

The correct answer is: q

Question 3

Correct

Mark 1.00 out of 1.00

The iteration $x_{n+1} = 2 - (1 + c)x_n + cx_n^3$ will converge to $\alpha = 1$ for some value of c (provided x_0 is chosen sufficiently close to α). The value of c for which convergence occurs is

Select one:

- A. $-1 < c < 1$
- B. $-2 < c < 2$
- C. $0 < c < 2$
- D. $-2 < c < 0$
- E. $0 < c < 1$

✓

Your answer is correct.

The correct answer is: $0 < c < 1$

Question 4

Correct

Mark 2.00 out of 2.00

The relation between the averaging operator μ and the central difference operator δ is

Select one:

- A. $\delta^2 = 1 - \frac{\mu^2}{4}$
- B. $\mu = 1 + \delta$
- C. $\mu^2 = 1 + \frac{\delta^2}{4}$ ✓
- D. $\delta^2 = 1 + \frac{\mu^2}{4}$
- E. $\mu^2 = 1 - \frac{\delta^2}{4}$

Your answer is correct.

The correct answer is: $\mu^2 = 1 + \frac{\delta^2}{4}$

Question 5

Incorrect

Mark -2.00 out of 2.00

The function $y = e^x$ is tabulated for $x = 0(0.01)1.0$. Then the maximum error in linear interpolation is

Select one:

- A. $0.0125e$
- B. $0.125e$
- C. $0.00125e$ ✗
- D. $0.000125e$
- E. $0.0000125e$

Your answer is incorrect.

The correct answer is: $0.0000125e$

Question 6

Correct

Mark 2.00 out of 2.00

Suppose a function g interpolates the function f at $x_0, x_1, \ldots\ldots, x_{n-1}$ and the function h interpolates the function f at $x_1, x_2, \ldots\ldots, x_n$, then which of the following functions interpolates f at $x_0, x_1, \ldots\ldots, x_n$

Select one:

A. $g(x) + \frac{x_0 - x}{x_n - x_0}[g(x) + h(x)]$

B. $h(x) + \frac{x_0 - x}{x_n - x_0}[h(x) - g(x)]$

C. $g(x) + \frac{x_0 - x}{x_n - x_0}[g(x) - h(x)]$

D. $g(x) + \frac{x - x_0}{x_n - x_0}[g(x) + h(x)]$

E. $g(x) + \frac{x - x_0}{x_n - x_0}[g(x) - h(x)]$

Your answer is correct.

The correct answer is: $g(x) + \frac{x_0 - x}{x_n - x_0}[g(x) - h(x)]$

◄ Impartus

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Quiz-II ►

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