Started on	Tuesday, 29 March 2022, 5:11 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:52 PM
Time taken	40 mins 26 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Correct

Mark 1.00 out of 1.00

The binary number of the following decimal value $(105.625)_{10}$ is 1101001.101

Select one:

⦿ True ✔

○ False

The correct answer is 'True'.

Question 2

Correct

Mark 1.00 out of 1.00

What are the decimal value of the following binary number according to the Floating-Point Arithmetic IEEE Standard 754

0	10000011	00010010000000000000000
Sign	**Exponent**	**Mantissa**

Select one:

○ a. -18.125

⦿ b. 17.125 ✔

○ c. 18.925

○ d. -17.725

Your answer is correct.

The correct answer is: 17.125

Question 3

Correct

Mark 1.00 out of 1.00

The Newton's Method for root finding is based on the approximation $x_n = x_{n-1}$

Select one:

○ True

⦿ False ✔

The correct answer is 'False'.

Question 4

Correct

Mark 1.00 out of 1.00

Let $f(x)$ be a continuous function defined on $[a_0, b_0]$, if $f(a_0) \cdot f(b_0) < 0$, so root in in intervals $[a_0, b_0]$

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 5

Correct

Mark 1.00 out of 1.00

In numerical analysis, the absolute error can be misleading and the relative error more meaningful

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 6

Correct

Mark 1.00 out of 1.00

Determine the approximation function $f(x)$ based on the divided difference table for the given data.

x	$f(x)$	First divided difference	Second divided difference	Third divided difference	Fourth divided difference	Fifth divided difference
1	3					
		14				
3	31		8			
		38		1		
4	69		12		0	
		62		1		0
5	131		16		0	
		110		1		
7	351		22			
		220				
10	1011					

Select one:

○ a. $p(x) = x^5 - x + 1$

◉ b. $p(x) = x^3 + x + 1$ ✔

○ c. $p(x) = x^5 + x + 2$

○ d. $p(x) = 2x^5 + x - 1$

Your answer is correct.

The correct answer is: $p(x) = x^3 + x + 1$

Question 7

Correct

Mark 1.00 out of 1.00

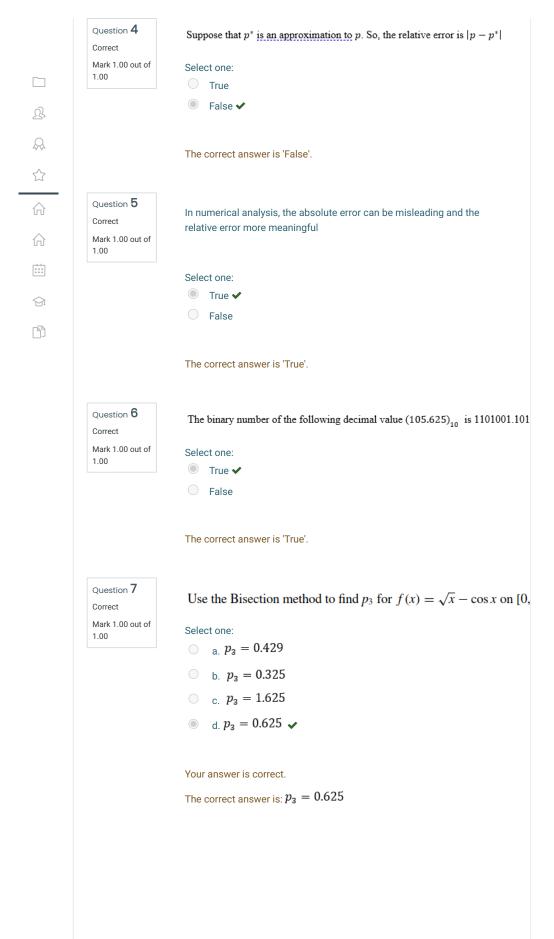The Floating-Point Arithmetic IEEE Standard 754 (Single Precision) is based on

Select one:
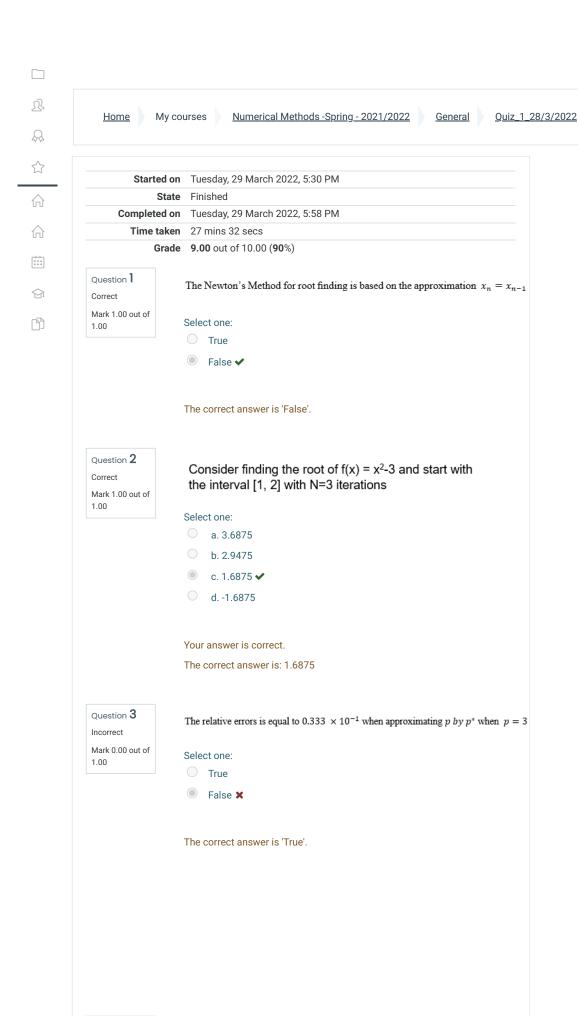
○ True

◉ False ✔

The correct answer is 'False'.

Question 8

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:
- ⦿ True ✔
- ○ False

The correct answer is 'True'.

Question 9

Correct

Mark 1.00 out of 1.00

The IEEE 754 Single precision is of 85.125

Select one:
- ○ a. 0 11000101 01010100100000000000000
- ○ b. 0 10000101 01010100000000000000000
- ⦿ c. 0 10000101 01010100100000000000000 ✔
- ○ d. 0 10001101 01010100100000000000000

Your answer is correct.

The correct answer is: 0 10000101 01010100100000000000000

Question 10

Correct

Mark 1.00 out of 1.00

Consider finding the root of $f(x) = x^2-3$ and start with the interval [1, 2] with N=3 iterations

Select one:
- ○ a. 3.6875
- ○ b. -1.6875
- ○ c. 2.9475
- ⦿ d. 1.6875 ✔

Your answer is correct.

The correct answer is: 1.6875

Started on	Tuesday, 29 March 2022, 5:08 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:34 PM
Time taken	25 mins 53 secs
Grade	**10.00** out of 10.00 (**100**%)

Question 1

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1010.01)_2$ is 12.25

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 2

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 3

Correct

Mark 1.00 out of 1.00

the minimum number of iterations needed in the Bisection Algorithm, given to

$a_0 = 3, b_0 = 4.5, and\ \epsilon = 10^{-5}$.

Select one:

○ a. 17 iterations

○ b. NA

◉ c. 18 iterations ✔

○ d. 20 iterations

Your answer is correct.
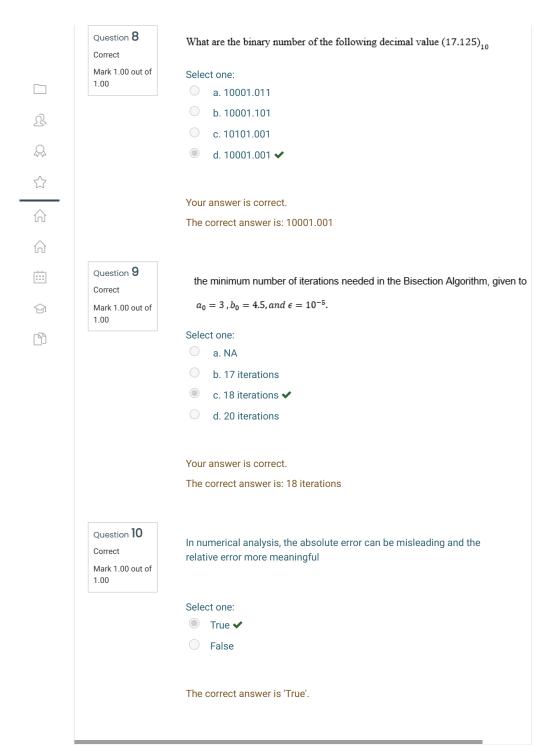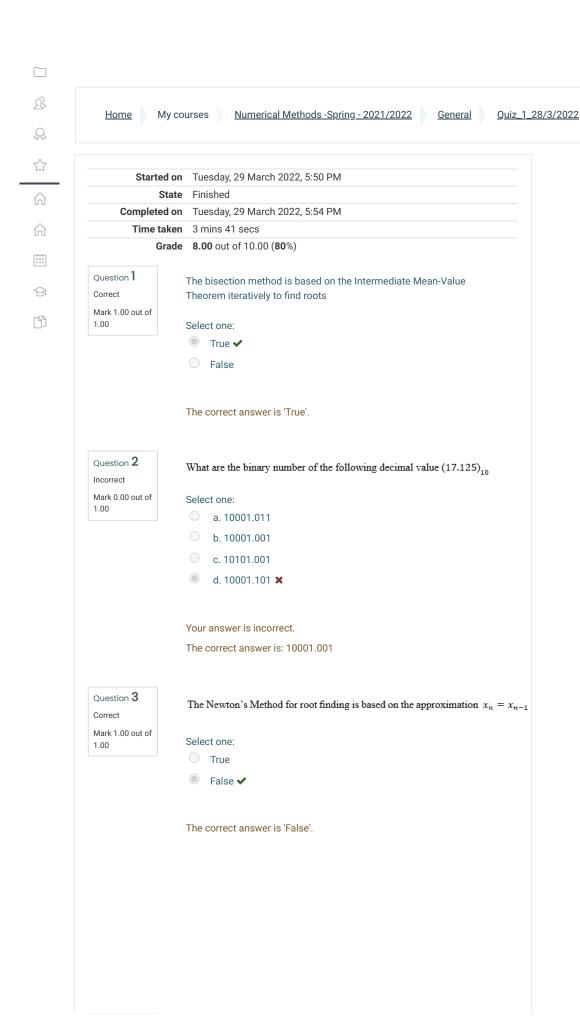
The correct answer is: 18 iterations

Question 4
Correct

Mark 1.00 out of 1.00

Suppose that p^* is an approximation to p. So, the relative error is $|p - p^*|$

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 5
Correct

Mark 1.00 out of 1.00

In numerical analysis, the absolute error can be misleading and the relative error more meaningful

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 6
Correct

Mark 1.00 out of 1.00

The binary number of the following decimal value $(105.625)_{10}$ is 1101001.101

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 7
Correct

Mark 1.00 out of 1.00

Use the Bisection method to find p_3 for $f(x) = \sqrt{x} - \cos x$ on $[0,$

Select one:

○ a. $p_3 = 0.429$

○ b. $p_3 = 0.325$

○ c. $p_3 = 1.625$

◉ d. $p_3 = 0.625$ ✔

Your answer is correct.

The correct answer is: $p_3 = 0.625$

Question 8

Correct

Mark 1.00 out of 1.00

Using the fixed-point iterative method find a root of

$$f(x) = 4x^2 + 2x - 1 \ , \ \varepsilon = 0.005 \ \ with \ interval \ [0,1]$$

Select one:
- ⦿ a. 0.308 ✔
- ○ b. 1.308
- ○ c. 0.508
- ○ d. 0.108

Your answer is correct.

The correct answer is: 0.308

Question 9

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1111.111)_2$ is 15.875

Select one:
- ⦿ True ✔
- ○ False

The correct answer is 'True'.

Question 10

Correct

Mark 1.00 out of 1.00

Consider finding the root of $f(x) = x^2-3$ and start with the interval [1, 2] with N=3 iterations

Select one:
- ○ a. 2.9475
- ⦿ b. 1.6875 ✔
- ○ c. -1.6875
- ○ d. 3.6875

Your answer is correct.

The correct answer is: 1.6875

Learn Any Time, Any Where
Hotline: 16541

Started on	Tuesday, 29 March 2022, 5:30 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:58 PM
Time taken	27 mins 32 secs
Grade	**9.00** out of 10.00 (**90**%)

Question 1

Correct

Mark 1.00 out of 1.00

The Newton's Method for root finding is based on the approximation $x_n = x_{n-1}$

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 2

Correct

Mark 1.00 out of 1.00

Consider finding the root of $f(x) = x^2-3$ and start with the interval [1, 2] with N=3 iterations

Select one:

○ a. 3.6875

○ b. 2.9475

◉ c. 1.6875 ✔

○ d. -1.6875

Your answer is correct.

The correct answer is: 1.6875

Question 3

Incorrect

Mark 0.00 out of 1.00

The relative errors is equal to 0.333×10^{-1} when approximating p by p^* when $p = 3$

Select one:

○ True

◉ False ✖

The correct answer is 'True'.

Question 4

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 5

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1010.01)_2$ is 12.25

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 6

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1111.111)_2$ is 15.875

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 7

Correct

Mark 1.00 out of 1.00

What are the decimal value of the following binary number according to the Floating-Point Arithmetic IEEE Standard 754

0	10000011	00010010000000000000000
Sign	Exponent	Mantissa

Select one:

◉ a. 17.125 ✔

○ b. -17.725

○ c. 18.925

○ d. -18.125

Your answer is correct.

The correct answer is: 17.125

Question 8

Correct

Mark 1.00 out of 1.00

What are the binary number of the following decimal value $(17.125)_{10}$

Select one:

- ○ a. 10001.011
- ○ b. 10001.101
- ○ c. 10101.001
- ⦿ d. 10001.001 ✔

Your answer is correct.

The correct answer is: 10001.001

Question 9

Correct

Mark 1.00 out of 1.00

the minimum number of iterations needed in the Bisection Algorithm, given to

$a_0 = 3, b_0 = 4.5, and \ \epsilon = 10^{-5}$.

Select one:

- ○ a. NA
- ○ b. 17 iterations
- ⦿ c. 18 iterations ✔
- ○ d. 20 iterations

Your answer is correct.

The correct answer is: 18 iterations

Question 10

Correct

Mark 1.00 out of 1.00

In numerical analysis, the absolute error can be misleading and the relative error more meaningful

Select one:

- ⦿ True ✔
- ○ False

The correct answer is 'True'.

Learn Any Time, Any Where
Hotline: 16541

Started on	Tuesday, 29 March 2022, 5:50 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:54 PM
Time taken	3 mins 41 secs
Grade	**8.00** out of 10.00 (**80**%)

Question 1

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:

○ True ✔

○ False

The correct answer is 'True'.

Question 2

Incorrect

Mark 0.00 out of 1.00

What are the binary number of the following decimal value $(17.125)_{10}$

Select one:

○ a. 10001.011

○ b. 10001.001

○ c. 10101.001

◉ d. 10001.101 ✘

Your answer is incorrect.

The correct answer is: 10001.001

Question 3

Correct

Mark 1.00 out of 1.00

The Newton's Method for root finding is based on the approximation $x_n = x_{n-1}$

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 4

Correct

Mark 1.00 out of 1.00

Let $f(x)$ be a continuous function defined on $[a_0, b_0]$, if $f(a_0) \cdot f(b_0) < 0$, so
root in in intervals $[a_0, b_0]$

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 5

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1111.111)_2$ is 15.875

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 6

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1010.01)_2$ is 12.25

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 7

Correct

Mark 1.00 out of 1.00

The binary number of the following decimal value $(105.625)_{10}$ is 1101001.101

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 8

Correct

Mark 1.00 out of 1.00

Let $f(x) = x^2 - 6$ and $p_0 = 1$. Use Newton's method to find p_2.

Select one:

○ a. 4.60714

○ b. 1.60714

○ c. 0.60714

◉ d. 2.60714 ✔

Your answer is correct.

The correct answer is: 2.60714

Consider finding the root of f(x) = x²-3 and start with the interval [1, 2] with N=3 iterations

Select one:

○   a. -1.6875

◉   b. 1.6875 ✔

○   c. 3.6875

○   d. 2.9475

Your answer is correct.

The correct answer is: 1.6875

Determine the approximation function $f(x)$ based on the divided difference table for the given data.

x	$f(x)$	First divided difference	Second divided difference	Third divided difference	Fourth divided difference	Fifth divided difference
1	3					
		14				
3	31		8			
		38		1		
4	69		12		0	
		62		1		0
5	131		16		0	
		110		1		
7	351		22			
		220				
10	1011					

Select one:

◉   a. $P(x) = x^5 + x + 2$ ✗

○   b. $P(x) = x^3 + x + 1$

○   c. $P(x) = 2x^5 + x - 1$

○   d. $P(x) = x^5 - x + 1$

Your answer is incorrect.

The correct answer is: $P(x) = x^3 + x + 1$

Started on	Tuesday, 29 March 2022, 5:00 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:13 PM
Time taken	13 mins 1 sec
Grade	**9.00** out of 10.00 (**90**%)

Question 1

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 2

Correct

Mark 1.00 out of 1.00

the minimum number of iterations needed in the Bisection Algorithm, given to $a_0 = 3$, $b_0 = 4.5$, $and\ \epsilon = 10^{-5}$.

Select one:

○ a. 20 iterations

○ b. NA

◉ c. 18 iterations ✔

○ d. 17 iterations

Your answer is correct.

The correct answer is: 18 iterations

Question 3

Correct

Mark 1.00 out of 1.00

The Floating-Point Arithmetic IEEE Standard 754 (Single Precision) is based on

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 4
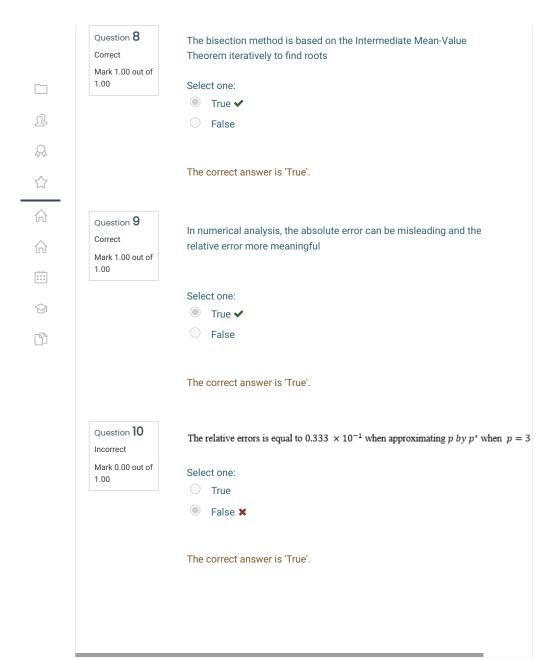Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1010.01)_2$ is 12.25

Select one:

○ True

● False ✔

The correct answer is 'False'.

Question 5
Incorrect

Mark 0.00 out of 1.00

The Newton's Method for root finding is based on the approximation $x_n = x_{n-1}$

Select one:

● True ✘

○ False

The correct answer is 'False'.

Question 6
Correct

Mark 1.00 out of 1.00

Let $f(x)$ be a continuous function defined on $[a_0, \ b_0]$, if $f(a_0) \cdot f(b_0) < 0$, so root in in intervals $[a_0, b_0]$

Select one:

● True ✔

○ False

The correct answer is 'True'.

Question 7
Correct

Mark 1.00 out of 1.00

Suppose that p^* is an approximation to p. So, the relative error is $|p - p^*|$

Select one:

○ True

● False ✔

The correct answer is 'False'.

Question 8
Correct

Mark 1.00 out of 1.00

What are the binary number of the following decimal value $(8.75)_{10}$

Select one:

● a. 1000.11 ✔

○ b. 1100.11

○ c. 1000.111

○ d. 1001.101

Your answer is correct.

The correct answer is: 1000.11

The IEEE 754 Single precision is of 85.125

Select one:

○ a. 0 10000101 01010100000000000000000

○ b. 0 11000101 01010100100000000000000

◉ c. 0 10000101 01010100100000000000000 ✔

○ d. 0 10001101 01010100100000000000000

Your answer is correct.

The correct answer is: 0 10000101 01010100100000000000000

What are the binary number of the following decimal value $(17.125)_{10}$

Select one:

◉ a. 10001.001 ✔

○ b. 10001.101

○ c. 10001.011

○ d. 10101.001

Your answer is correct.

The correct answer is: 10001.001

Learn Any Time, Any Where
Hotline: 16541

Started on	Tuesday, 29 March 2022, 5:27 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:44 PM
Time taken	17 mins 23 secs
Grade	**9.00** out of 10.00 (**90**%)

Question 1

Correct

Mark 1.00 out of 1.00

What are the binary number of the following decimal value $(8.75)_{10}$

Select one:

○ a. 1001.101

○ b. 1000.111

◉ c. 1000.11 ✔

○ d. 1100.11

Your answer is correct.

The correct answer is: 1000.11

Question 2

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1010.01)_2$ is 12.25

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 3

Correct

Mark 1.00 out of 1.00

Suppose that p^* is an approximation to p. So, the relative error is $|p - p^*|$

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 4

Correct

Mark 1.00 out of 1.00

What are the decimal value of the following binary number according to the Floating-Point Arithmetic IEEE Standard 754

0	10000011	00010010000000000000000
Sign	Exponent	Mantissa

Select one:

○ a. -18.125

○ b. 18.925

○ c. -17.725

⦿ d. 17.125 ✔

Your answer is correct.

The correct answer is: 17.125

Question 5

Correct

Mark 1.00 out of 1.00

Using the fixed-point iterative method find a root of

$f(x) = 4x^2 + 2x - 1$, $\varepsilon = 0.005$ $with\ interval\ [0,1]$

Select one:

⦿ a. 0.308 ✔

○ b. 0.108

○ c. 1.308

○ d. 0.508

Your answer is correct.

The correct answer is: 0.308

Question 6

Correct

Mark 1.00 out of 1.00

Consider finding the root of f(x) = x²-3 and start with the interval [1, 2] with N=3 iterations

Select one:

○ a. 3.6875

⦿ b. 1.6875 ✔

○ c. -1.6875

○ d. 2.9475

Your answer is correct.

The correct answer is: 1.6875

Question 7

Correct

Mark 1.00 out of 1.00

The Newton's Method for root finding is based on the approximation $x_n = x_{n-1}$

Select one:

○ True

⦿ False ✔

The correct answer is 'False'.

Question 8

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 9

Correct

Mark 1.00 out of 1.00

In numerical analysis, the absolute error can be misleading and the relative error more meaningful

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question 10

Incorrect

Mark 0.00 out of 1.00

The relative errors is equal to 0.333×10^{-1} when approximating p by p^* when $p = 3$

Select one:

○ True

◉ False ✘

The correct answer is 'True'.

Learn Any Time, Any Where
Hotline: 16541

Started on	Tuesday, 29 March 2022, 5:45 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:49 PM
Time taken	4 mins 20 secs
Grade	**9.00** out of 10.00 (**90%**)

Question **1**

Correct

Mark 1.00 out of 1.00

the minimum number of iterations needed in the Bisection Algorithm, given to

$a_0 = 3, b_0 = 4.5, and\ \epsilon = 10^{-5}.$

Select one:

○ a. 20 iterations

○ b. 17 iterations

○ c. NA

◉ d. 18 iterations ✔

Your answer is correct.

The correct answer is: 18 iterations

Question **2**

Correct

Mark 1.00 out of 1.00

Determine the approximation function $f(x)$ based on the divided difference table for the given data.

x	f(x)	First divided difference	Second divided difference	Third divided difference	Fourth divided difference	Fifth divided difference
1	3					
		14				
3	31		8			
		38		1		
4	69		12		0	
		62		1		0
5	131		16		0	
		110		1		
7	351		22			
		220				
10	1011					

Select one:

○ a. $p(x) = x^5 + x + 2$

○ b. $p(x) = x^5 - x + 1$

◉ c. $p(x) = x^3 + x + 1$ ✔

○ d. $p(x) = 2x^5 + x - 1$

Your answer is correct.

The correct answer is: $p(x) = x^3 + x + 1$

Question 3

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1010.01)_2$ is 12.25

Select one:

○ True

● False ✔

The correct answer is 'False'.

Question 4

Correct

Mark 1.00 out of 1.00

The IEEE 754 Single precision is of 85.125

Select one:

● a. 0 10000101 01010100100000000000000 ✔

○ b. 0 11000101 01010100100000000000000

○ c. 0 10000101 01010100000000000000000

○ d. 0 10001101 01010100100000000000000

Your answer is correct.

The correct answer is: 0 10000101 01010100100000000000000

Question 5

Correct

Mark 1.00 out of 1.00

The binary number of the following decimal value $(105.625)_{10}$ is 1101001.101

Select one:

● True ✔

○ False

The correct answer is 'True'.

Question 6

Correct

Mark 1.00 out of 1.00

Let $f(x)$ be a continuous function defined on $[a_0,\ b_0]$, if $f(a_0) \cdot f(b_0) < 0$, so root in in intervals $[a_0, b_0]$

Select one:

● True ✔

○ False

The correct answer is 'True'.

Question 7

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:

● True ✔

○ False

The correct answer is 'True'.

Question 8

Incorrect

Mark 0.00 out of
1.00

What are the binary number of the following decimal value $(17.125)_{10}$

Select one:

- a. 10001.011 ✖
- b. 10001.001
- c. 10101.001
- d. 10001.101

Your answer is incorrect.

The correct answer is: 10001.001

Question 9

Correct

Mark 1.00 out of
1.00

The decimal value of the following binary number $(1111.111)_2$ is 15.875

Select one:

- True ✔
- False

The correct answer is 'True'.

Question 10

Correct

Mark 1.00 out of
1.00

The Floating-Point Arithmetic IEEE Standard 754 (Single Precision) is based on

Select one:

- True
- False ✔

The correct answer is 'False'.

Started on	Tuesday, 29 March 2022, 5:00 PM
State	Finished
Completed on	Tuesday, 29 March 2022, 5:45 PM
Time taken	45 mins
Grade	**9.00** out of 10.00 (**90**%)

Question 1

Correct

Mark 1.00 out of 1.00

Use the Bisection method to find p_3 for $f(x) = \sqrt{x} - \cos x$ on $[0,$

Select one:

○ a. $p_3 = 0.325$

◉ b. $p_3 = 0.625$ ✔

○ c. $p_3 = 1.625$

○ d. $p_3 = 0.429$

Your answer is correct.

The correct answer is: $p_3 = 0.625$

Question 2

Correct

Mark 1.00 out of 1.00

The decimal value of the following binary number $(1010.01)_2$ is 12.25

Select one:

○ True

◉ False ✔

The correct answer is 'False'.

Question 3

Incorrect

Mark 0.00 out of 1.00

The Newton's Method for root finding is based on the approximation $x_n = x_{n-1}$

Select one:

◉ True ✘

○ False

The correct answer is 'False'.

The IEEE 754 Single precision is of 85.125

Select one:

- a. 0 10001101 01010100100000000000000
- b. 0 11000101 01010100100000000000000
- c. 0 10000101 01010100100000000000000 ✔
- d. 0 10000101 01010100000000000000000

Your answer is correct.

The correct answer is: 0 10000101 01010100100000000000000

Suppose that p^* is an approximation to p. So, the relative error is $|p - p^*|$

Select one:

- ○ True
- ◉ False ✔

The correct answer is 'False'.

The Floating-Point Arithmetic IEEE Standard 754 (Single Precision) is based on

Select one:

- ○ True
- ◉ False ✔

The correct answer is 'False'.

The decimal value of the following binary number $(1111.111)_2$ is 15.875

Select one:

- ◉ True ✔
- ○ False

The correct answer is 'True'.

Question 8

Correct

Mark 1.00 out of 1.00

What are the decimal value of the following binary number according to the Floating-Point Arithmetic IEEE Standard 754

0	10000011	00010010000000000000000
Sign	**Exponent**	**Mantissa**

Select one:

- ○ a. -17.725
- ◉ b. 17.125 ✔
- ○ c. 18.925
- ○ d. -18.125

Your answer is correct.

The correct answer is: 17.125

Question 9

Correct

Mark 1.00 out of 1.00

What are the binary number of the following decimal value $(8.75)_{10}$

Select one:

- ○ a. 1000.111
- ○ b. 1100.11
- ◉ c. 1000.11 ✔
- ○ d. 1001.101

Your answer is correct.

The correct answer is: 1000.11

Question 10

Correct

Mark 1.00 out of 1.00

The bisection method is based on the Intermediate Mean-Value Theorem iteratively to find roots

Select one:

- ◉ True ✔
- ○ False

The correct answer is 'True'.

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