R VEDHA VISALAKSHI

NPTEL ASSIGNMENT -

Problem Solving Through Programming In C

WEEK 10 – MCQ QUIZ

Week 10 : Assignment 10

The due date for submitting this assignment has passed.

Due on 2023-10-04, 23:59 IST.

Assignment submitted on 2023-10-03, 21:19 IST

1) *1 point*

Bisection method is used to find
- a) Derivative of a function at a given point
- b) Numerical integration of a function within a range
- c) The root of a function
- d) None of the above

- a) Option (a)
- b) Option (b)
- c) Option (c)
- d) Option (d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
c) Option (c)

2) *1 point*

In ……, the search starts at the beginning of the list and checks every element in the list.
- a) Linear search
- b) Binary search
- c) Hash search
- d) Binary tree search

- a) Option (a)
- b) Option (b)
- c) Option (c)
- d) Option (d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
a) Option (a)

3) *1 point*

What is the worst-case time complexity of Linear Search?
- a) O(1)
- b) O(logn)
- c) O(n)
- d) $O(n^2)$

- a) Option (a)
- b) Option (b)
- c) Option (c)
- d) Option (d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
c) Option (c)

4) What is the worst-case complexity of bubble sort? 1 point

a) O(N log N)
b) O(log N)
c) O(N)
d) O(N^2)

- a) Option (a)
- b) Option (b)
- c) Option (c)
- (•) d) Option (d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
d) Option (d)

5) What maximum number of comparisons can occur when a bubble sort is implemented? Assume there are n elements in the array. 1 point

a) (1/2) (n-1)
b) (1/2) n(n-1)
c) (1/4) n(n-1)
d) None of the above

- a) Option (a)
- (•) b) Option (b)
- c) Option (c)
- d) Option (d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
b) Option (b)

6) What are the correct intermediate steps of the following data set when it is being sorted with the bubble sort? 7,4,1,8,2 1 point

a) 4,7,1,8,2→4,1,7,2,8→4,1,2,7,8→1,4,2,7,8→1,2,4,7,8
b) 4,7,1,8,2→4,1,7,8,2→4,1,7,2,8→1,4,7,2,8→1,4,2,7,8→1,2,4,7,8
c) 4,7,1,8,2→1,4,7,8,2→1,4,2,7,8→1,2,4,7,8
d) 4,7,1,8,2→4,7,1,2,8→1,4,7,2,8→1,4,2,7,8→1,2,4,7,8

- a) Option(a)
- (•) b) Option(b)
- c) Option(c)
- d) Option(d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
b) Option(b)

7) What is the main disadvantage of the Bisection Method? *1 point*

a) It is computationally expensive
b) It cannot find complex roots
c) It requires the function to be differentiable
d) It is not guaranteed to converge

- a) Option (a)
- b) Option (b)
- c) Option (c)
- d) Option (d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
b) Option (b)

8) What will be the output of the following snippet?

```
int arr[] = {10, 20, 30, 40, 50};
int *ptr1 = arr;
int *ptr2 = ptr1 + 3;
printf("%d", *ptr2 - *ptr1);
```

30

Hint

Yes, the answer is correct.
Score: 1
Accepted Answers:
(Type: Numeric) 30

1 point

9) What is the solution of the equation given below using the Bisection Method up to four decimal places? (Consider the root lying on positive quadrant only and compute the root till five iterations only)

$$f(x) = xe^{2x} - 3x^2 - 5$$

1.0312

Hint

Yes, the answer is correct.
Score: 1
Accepted Answers:
(Type: Numeric) 1.0312

1 point

10) What will be the output? *1 point*

```
#include <stdio.h>
int main(void)
{
int a[] = {10, 12, 6, 7, 2};
int i, *p;
p=a+4;
for(i=0; i<5; i++)
printf("%d ", p[-i]);
return 0;
}
```

- a) Option (a)
- b) Option (b)
- c) Option (c)
- d) Option (d)

Yes, the answer is correct.
Score: 1
Accepted Answers:
d) Option (d)