

Started on	Saturday, 24 September 2022, 4:20 PM
State	Finished
Completed on	Saturday, 24 September 2022, 4:20 PM
Time taken	8 secs
Marks	0.00/5.00
Grade	0.00 out of 10.00 (0%)

Question 1

Not answered

Marked out of 1.00

How many comparisons are needed for a binary search in a set of 64 elements?

- ☐ a. 10
- ☐ b. 14
- ☐ c. 16
- ☐ d. 12

Your answer is incorrect.

$f(64) = f(32) + 2 = f(16) + 4 = f(8) + 6 = f(4) + 8 = f(2) + 10 = f(1) + 12 = 2 + 12 = 14.$

The correct answer is:

14

Question **2**

Not answered

Marked out of 1.00

Suppose that $f(n) = 2f(n/2) + 3$ when n is an even positive integer, and $f(1) = 5$. Find $f(8)$.

- ☐ a. 61
- ☐ b. 59
- ☐ c. 58
- ☐ d. 60

Your answer is incorrect.

61

The correct answer is:

61

Question 3

Not answered

Marked out of 1.00

Suppose that $f(n) = f(n/5) + 3n^2$ when n is a positive integer divisible by 5, and $f(1) = 4$. Find $f(125)$

- ☐ a. 49,029
- ☐ b. 48,829
- ☐ c. 48,504
- ☐ d. 46,875

Your answer is incorrect.

48,829

The correct answer is:

48,829

Question **4**

Not answered

Marked out of 1.00

Suppose that $f(n) = f(n/3) + 1$ when n is a positive integer divisible by 3, and $f(1) = 1$. Find $f(27)$.

- ☐ a. 3
- ☐ b. 6
- ☐ c. 5
- ☐ d. 4

Your answer is incorrect.

4

The correct answer is:

4

Question 5

Not answered

Marked out of 1.00

Find a recurrence relation for the number of bit strings of length n that do not contain three consecutive 0s.

- ☐ a. $a_n = a_{(n-1)} + a_{(n-2)}, n \geq 3$
- ☐ b. None of these
- ☐ c. $a_n = a_{(n-1)} + a_{(n-2)}, n \geq 2$
- ☐ d. $a_n = a_{(n-1)} + a_{(n-2)} + a_{(n-3)}, n \geq 3$

Your answer is incorrect.

$$a_n = a_{(n-1)} + a_{(n-2)} + a_{(n-3)}, n \geq 3$$

The correct answer is:

$$a_n = a_{(n-1)} + a_{(n-2)} + a_{(n-3)}, n \geq 3$$

