

Started on	Sunday, 4 February 2024, 6:04 PM
State	Finished
Completed on	Sunday, 4 February 2024, 6:10 PM
Time taken	6 mins 46 secs
Marks	7.67/8.00
Grade	<b>9.58</b> out of 10.00 ( <b>95.83</b> %)

## Question 1

Correct

Mark 1.00 out of 1.00

Following is the execution time measurement taken for a sorting algorithm to sort an array with a random permutation of elements.

No. of elements in the array (N)	Execution time (micro seconds)
1024	51
2048	202
4096	805
8192	3227
16384	12900
32768	51592

What can be the possible average case time complexity of this sorting algorithm?

Select one:

$$\circ$$
 a.  $O(N)$ 

ob. 
$$O(Nlg(N))$$
oc.  $O(N^2)$ 

$$\circ$$
 d.  $O(4N)$ 

Your answer is correct.

The correct answer is:

 $O(N^2)$ 

4,	10:02 PM			Quiz 2: Attempt revi	
	Question 2 Partially correct Mark 0.67 out of 1.00				
		functions, <b>l</b> og <sub>2</sub> n these functio	e(n) and log <sub>8</sub> (n), what is the ons?	asymptotic relationship	
	a.	log <sub>2</sub> (n) is O(lo	og <sub>8</sub> (n))		
	✓ b.	log <sub>2</sub> (n) is 🕝	(log <sub>8</sub> (n)) <b>✓</b>		
	<b>✓</b> C.	$\log_2(n)$ is $\bigcap$	(log <sub>8</sub> (n)) ✓		
	The cor		are: log <sub>2</sub> (n) is O(log <sub>8</sub> (n)), log	$I_2(n)$ is $\bigcap (log_8(n))$ , $log_2(n)$ is	
	Question 3 Correct Mark 1.00 c				
	Express	s the function	$\frac{n^3}{1000} - 100n^2 - 100n + 3$	in terms of Θ-notation.	
	O c.	$\begin{array}{c} \Theta(n^2) \\ \Theta(n^3) \checkmark \\ \Theta\left(\sqrt{m}\right) \\ \Theta(\lg(n)) \end{array}$			
	The cor	rect answer is	: Θ(n³)		
	Question 4 Correct				
	Mark 1.00 c	out of 1.00			
	The bes	st case occur i	n binary search a <b>l</b> gorithm w	hen	
	○ a.	Item is not in	the array at all		
	O b.	Item is the m	idd <b>l</b> e element of the array o	r is not there at all	
	O C.	Item is the fi	rst element in the array		
	d.	Item is the m	iddle element of the array 🖠	•	
	The cor	rect answer is	: Item is the middle elemen	t of the array	

https://online.uom.lk/mod/quiz/review.php? attempt = 715799&cmid = 375651

## ${\tt Question}~{\bf 5}$ Correct Mark 1.00 out of 1.00 What is the time complexity of the following code? int i, j, k = 0; for $(i = N / 2; i \le N; i++) {$ for $(j = 2; j \le N; j = j * 2) {$ k = k + N/2; } ○ a. O(N) ○ b. O(N\*N) ○ C. O(N\*log(N)) d. O(N\*Sqrt(N)) The correct answer is: O(N\*log(N))Question 6 Correct Mark 1.00 out of 1.00 What are the factors that affect the running time of a program? oa. CPU speed Ob. Nature of input data set o. Memory d. All of the above ✓ The correct answer is: All of the above

## Question 7Correct Mark 1.00 out of 1.00 What is the time complexity of the following code? int a = 0; for (i = 0; i < N; i++) { for $(j = N; j > i; j-) {$ a = a + i + j; } ○ a. O(N\*Sqrt(N)) b. O(N\*N) ✓ ○ c. O(N\*log(N)) ○ d. O(N) The correct answer is: O(N\*N) Question 8Correct Mark 1.00 out of 1.00 The worst case complexity of Bubble sort algorithm is ○ a. O(log(n)) b. O(n²) ✓ o. O(n log(n)) O(n) The correct answer is: $O(n^2)$