MIDTERM TEST FOR Semester 1, AY2022/23

CS2040 – Data Structures and Algorithms ANSWER SHEET

Q1a [2]		Q1b [2]	Q1b [2]			
○ True	○ False	○ True	○ False			

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	7	7	7	7	7	7	7		
	8	8	8	8	8	8	8		
	9	9	9	9	9	9	9		

Q2a [2]						
O(log(log(N))	O(log(N))	\bigcirc O(\sqrt{N})	$\bigcirc O(\sqrt{N}\log(N))$	○ O(N)	O(N log(N))	
O(N ^{1.5})	\bigcirc O(N ^{1.5} log(N))	○ O(N²)	\bigcirc O(N ² log(N))	○ O(2 ^N)	○ O(N!)	
Q2b [2]						
O(log(log(N))	O(log(N))	\bigcirc O(\sqrt{N})	\bigcirc O($\sqrt{N}\log(N)$)	○ O(N)	O(N log(N))	
O(N ^{1.5})	\bigcirc O(N ^{1.5} log(N))	\bigcirc O(N ²)	\bigcirc O(N ² log(N))	○ O(2 ^N)	○ O(N!)	
Q2c [2]		_		_		
O(log(log(N))	O(log(N))	\bigcirc O(\sqrt{N})	$\bigcirc O(\sqrt{N}\log(N))$	○ O(N)	O(N log(N))	
○ O(N ^{1.5})	\bigcirc O(N ^{1.5} log(N))	○ O(N²)	\bigcirc O(N ² log(N))	○ O(2 ^N)	○ O(N!)	
Q2d [2]						
O(log(log(N))	O(log(N))	\bigcirc O(\sqrt{N})	\bigcirc O($\sqrt{N}\log(N)$)	○ O(N)	O(N log(N))	
O(N ^{1.5})	\bigcirc O(N ^{1.5} log(N))	○ O(N²)	\bigcirc O(N ² log(N))	○ O(2 ^N)	○ O(N!)	
Q2e [2]						
O(log(log(N))	O(log(N))	\bigcirc O(\sqrt{N})	\bigcirc O($\sqrt{N}\log(N)$)	○ O(N)	O(N log(N))	
O(N ^{1.5})	\bigcirc O(N ^{1.5} log(N))	○ O(N²)	\bigcirc O(N ² log(N))	○ O(2 ^N)	○ O(N!)	
Q2f [2]			•			
O(log(log(N))	O(log(N))	\bigcirc O(\sqrt{N})	\bigcirc O($\sqrt{N}\log(N)$)	○ O(N)	O(N log(N))	
O(N ^{1.5})	\bigcirc O(N ^{1.5} log(N))	○ O(N²)	\bigcirc O(N ² log(N))	○ O(2 ^N)	○ O(N!)	
Q2g [2]						
O(log(log(N))	O(log(N))	\bigcirc O(\sqrt{N})	\bigcirc O($\sqrt{N}\log(N)$)	○ O(N)	O(N log(N))	
O(N ^{1.5})	\bigcirc O(N ^{1.5} log(N))	○ O(N²)	\bigcirc O(N ² log(N))	○ O(2 ^N)	○ O(N!)	
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Q3a [5]						_		
2 Cats	O 1 Cat +1 Dog	2 Dogs	O 1Dog +1Cow	2 Cows	1 Dog + 2Cows			
Q3b [5]						-		
○ 2 R	○ 1 R + 1 W	○ 2 W	○ 2 R + 1 W	○ 1 R + 2W	○ 2 R + 2 W			
Q4 [9] Leave unshaded if code snippet does NOT correctly solve any problem Q4A Q4B Q4C Q4D								
Q4A		P1	Q4C	. O P2 O F	Q4D P3	2 O P3		
	F2 O F3 O	FI OFZ						
Q5 [8 + 3?	ני							