ZJU–ADS–HQM2020–WK13

判断题 4   **A. 单选题** 2

1–1 EREW does not allow simultaneous access by more than one processor to the same memory location for read or write purposes.

   (1分)

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◉ T   ○ F

1–1 答案正确 （1 分）　💡 创建提问

1–2 CREW allows concurrent access for reads but not for writes. （1分）

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1–2 答案正确 （1 分）　💡 创建提问

1–3 CRCW allows concurrent access for both reads and writes. （1分）

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1–3 答案正确 （1 分）　💡 创建提问

1–4 In Work–Depth presentation, each time unit consists of a sequence of instructions to be performed concurrently; the sequence of instructions may include any number.

   (1分)

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单位时间内执行的指令数?

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1–4 答案正确 （1 分）　💡 创建提问

2–1 The prefix–min problem is to find for each i, $1 \leq i \leq n$, the smallest element among $A(1), A(2), \cdots, A(i)$. What is the run time and work load for the following algorithm? (3分)

```
for i, 1≤i≤n pardo
  B(0, i) = A(i)
for h=1 to log(n)
  for i, 1≤i≤n/2^h pardo
    B(h, i) = min {B(h-1, 2i-1), B(h-1, 2i)}
for h=log(n) to 0
  for i even, 1≤i≤n/2^h pardo
    C(h, i) = C(h+1, i/2)
  for i=1 pardo
    C(h, 1) = B(h, 1)
  for i odd, 3≤i≤n/2^h pardo
    C(h, i) = min {C(h + 1, (i - 1)/2), B(h, i)}
for i, 1≤i≤n pardo
  Output C(0, i)
```

- ○ A. $O(n), O(n)$
- ○ B. $O(logn), O(logn)$
- ◉ C. $O(logn), O(n)$
- ○ D. $O(n), O(lofn)$

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2–1 答案正确 (3 分)　♀ 创建提问

2–2 Which one of the following statements about the Maximum Finding problem is true? (3分)

- ○ A. There exists a serial algorithm with time complexity being $O(logN)$.
- ○ B. No parallel algorithm can solve the problem in $O(1)$ time.
- ○ C. When partitioning the problem into sub–problems and solving them in parallel, compared with $\sqrt{N}$, choosing $loglogN$ as the size of each sub–problem can reduce the work load and the worst–case time complexity.
- ◉ D. Parallel random sampling algorithm can run in $O(1)$ time and $O(N)$ work with very high probability.

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2–2 答案正确 (3 分)　♀ 创建提问