Unit 6 - Week 4

Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-02-26, 23:59 IST.

1) "Any comparision sort must make $\Omega(nlogn)$ comparisions in the worst case to sort n elements". *1 point*

(a) True
(b) False

a.
b.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

2) Which of the following is **False** about counting sort *1 point*

(a) Counting sort has no comparisons between input elements
(b) Counting sort is stable
(c) Counting sort is used as a subroutine to Radix sort
(d) Counting sort is unstable

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

3) The i^{th} order static of a set of n elements is the *1 point*

(a) i^{th} smallest element
(b) i^{th} largest element
(c) any of the n elements

a.
b.
c.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

4) The first order static ($i = 1$) of a set n elements is the *1 point*

(a) Maximum of the set
(b) Minimum of the set
(c) Median of the set
(d) There is no such term

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

5) Will the algorithm SELECT work in linear time if groups of 7 are used instead of 5 *1 point*

(a) Yes
(b) No

a.
b.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

6) Given n d-digit numbers in which each digit can take on up to k possible values, RADIX-SORT correctly sorts these numbers in *1 point*

(a) $\Theta(d(n + k))$ time.
(b) $\Theta(d(n \times k))$ time.
(c) $\Theta(d(n^k))$ time.
(d) $\Theta(d^{(n+k)})$ time.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

7) Given n b-bit numbers and any positive integer $r < b$, RADIX-SORT correctly sorts these numbers in *1 point*

(a) $\Theta((b/r)(n + 2^r))$ time.
(b) $\Theta((br)(n + 2r))$ time.
(c) $\Theta((br)(n \times 2^r))$ time.
(d) $\Theta((r/b)(n \times (2/r)))$ time.

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

8) If the input elements to Bucket sort is drawn from a random distribution, then the run time of Bucket sort is *1 point*

(a) Linear
(b) Quadratic
(c) Qubic
(d) Biquadratic

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

9) let n_i be the random variable denoting the number of elements placed in bucket $B[i]$, then the running time of the Bucket sort is *1 point*

(a) $T(n) = \Theta(n) + \sum_{i=0}^{n-1} \mathcal{O}(n)$
(b) $T(n) = \Theta(n) + \sum_{i=0}^{n-1} \mathcal{O}(logn)$
(c) $T(n) = \Theta(n) + \sum_{i=0}^{n-1} \mathcal{O}(n^2)$
(d) $T(n) = \Theta(n) + \sum_{i=0}^{n-1} \mathcal{O}(n^3)$

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

10) Consider that the input to Bucket sort is not drawn from a random distribution, but the input has the property that the sum of the squares of the bucket sizes is linear in the total number of elements, then the running time of Bucket sort is *1 point*

(a) Linear
(b) Quadratic
(c) Qubic
(d) Biquadratic

a.
b.
c.
d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.