DSA- EC1 Exam for Offshore

1

Marks: 1

If f (n) = 10; g (n) = log10 which of the following is true?
Choose one answer.

a. None of the above
b. f (n) = Big Theta (g(n))
c. f (n) = Omega(g (n))
d. f (n) = O (g(n))

2

Marks: 1

In an array queue, data is stored in an _____ element.
Choose one answer.

a. constructor
b. linked list
c. node
d. array

3

Marks: 1

Which of the following is true for insertion sort?
Choose one answer.

a. Best case is O(n^²) for compares.
b. Best case for shifts happens when the data are already

	sorted
	c. Worst case for compares occurs when the data are already sorted.
	d. Worst case is O(n^²) for swaps.

4

Marks: 1

Choose one answer.

	a. 2,2,1,1,1
	b. 2,2,1,2,1
	c. 2,1,2,1,1
	d. 2,1,2,2,1

5

Marks: 1

If f(n) = n and g (n) = log n^2 then f(n) = Theta g(n)

Answer:

True

False

6

Marks: 1

Which of the following expressions accesses the (i, j)th entry of m x n matrix stored in row

Choose one answer.

	a. m
	b. m x (j-1) + i-1
	c. m x(i-1) + j
	d. m x(i-1) + j-1

7

Marks: 1

If the array A contains the items 100,23,90,45,2,34,8 what will be resultant array A after 3rd pass of selection sort?

Choose one answer.

	a. 2,8,23,34,100,45,98
	b. 2,8,23,34,45,100,98
	c. 2,23,45,90,100,34,8
	d. 2,8,23,45,100,34,98

8

Marks: 1

A linear collection of data elements where the linear node is given by means of pointer is called

Choose one answer.

	a. None of these
	b. node list
	c. primitive list
	d. linked list

9

Marks: 1

If the address of A[1][1] and A[2][1] are 1000 and 1010 respectively and each element occupies 2 bytes then the array has been stored in _____ order.

Choose one answer.

	a. row major
	b. column major
	c. None of these
	d. matix major

10

Marks: 1

If f(n) = 2^n; g (n) = 3^n which of the following is true?

Choose one answer.

	a. f (n) = O (g (n))
	b. f (n) = Omega (g (n))
	c. f (n) = Big Theta (g (n))
	d. None of the above

DSA- EC1 Exam for Offshore

11

Marks: 1

Assume that we are running MergeSort on an array containing the following values: 7,5,9,4,4,8,2,6. What does the array contain just before the last call to a merge?

Choose one answer.

a. 2,4,4,5,,6,9,7,8b. 2,4,4,5,6,7,8,9c. 4,5,7,9,4,8,2,6d. 4,5,7,9,2,4,8,6.

12

Marks: 1

An algorithm that requires _____ operations to complete its task on n data elements is said to have a linear runtime.

Choose one answer.

a. 3n^2 + 3n + 2b. 3n+2c. 8d. 3n^2 + 2

13

Marks: 1

If the array A contains the items 10 ,4, 7, 23, 67, 12, 5, what will be

resultant array A after 3rd pass of Insertion sort?
Choose one answer.
a. 10,7,4,67,23,12,5b. 4,5,7,67,10,12c. 67,12,10,5,4,7d. 4,7,10,23,67,12,5

14

Marks: 1
If f (n) = 100n + 5 which of the following is true
Choose at least one answer.
a. f (n) = Theta (n^ 2)b. f (n) = O (n^2)c. f (n) = Omega (n^ 2)d. f (n) = Big Theta (n)

15

Marks: 1
Which of the following does not sorts in place
Choose one answer.
a. Selection sortb. Insertion sortc. Merge Sortd. Bubble sort

16

Marks: 1
A characteristic of the data that binary search uses but the linear search ignores is the_____.
Choose one answer.
a. Length of the list.b. Type of elements of the list.c. Maximum value in list.d. Order of the elements of the list.

17

Marks: 1
An _____ data type is a keyword of a
Choose one answer.
a. intb. abstractc. vectord. none of these

18

Marks: 1
An algorithm is made up of two independent time complexities f (n) and g (n). Then the complexities of the algorithm is in the order of
Choose one answer.
a. f (n) x g (n)b. Min (f (n), g (n))c. f (n) + g (n)d. Max (f (n), g (n))

19

Marks: 1
Insertion sort is faster than selection sort when the input array is already in sorted order.

Answer:
True
False

20

Marks: 1

------- form of access is used to add and remove nodes from a stack
Choose one answer.
a. both 1 and 2b. none of thesec. LIFOd. FIFO

21

Marks: 1

(n^2) log n = theta (n)
Answer:
True
False

22

Marks: 1

The smallest element of an array index is called its
Choose one answer.
a. lower boundb. upper boundc. ranged. all of these

23
Marks: 1
Which is the solution for the recurrence T(n) = 10T(n/3) + n1.1
Choose one answer.
a. Theta (n^3)b. Theta (lg n)c. None of the aboved. Theta (n lg n)

24
Marks: 1
A double subscripted array declared as int a[10][5] has how many elements?
Choose one answer.
a. 17b. 12c. 50d. 15

25
Marks: 1
Which is the solution for the recurrence T (n) = 8T (n/2) + n
Choose one answer.
a. None of the aboveb. Theta (lg n)c. Theta (n^3)d. Theta (n lg n)

26
Marks: 1
10n^2 + 9 = O (n)
Answer:
True
False

27
Marks: 1
The data structure required to evaluate a postfix expression is
Choose one answer.
a. listb. stackc. queued. array

28
Marks: 1
Which of the following abstract data types are NOT used by Integer Abstract Data type group
Choose one answer.
a. floatb. intc. shortd. long

29
Marks: 1
Which is the solution for the recurrence T (n) = 3T (n/5) + lg^2 n
Choose one answer.

a. Theta (lg n)b. Theta (n lg n)c. None of the aboved. Theta (n)

30

Marks: 1

The number of swappings needed to sort the numbers 8, 22, 7, 9, 31, 19, 5, 13 in ascending order using bubble sort is

Choose one answer.

a. 14b. 11c. 12d. 13

DSA- EC1 Exam for Offshore

31

Marks: 1

Which of the following is the non-increasing order of asymptotic complexity of the functions 6, 2^n , n!, log log n, n log n, (log n)^2 ?

Choose one answer.

a. None of the above.b. n!, n log n, 2 n , log log n , (log n)2 , 6c. n!, 2 n , n log n, (log n)2 , log log n , 6d. n!, 2 n , n log n, log log n , (log n)2 , 6

32

Marks: 1

Which of the following is not a dynamic data structure?

Choose one answer.

a. Arrayb. Binary treec. Stackd. Linked list

33

Marks: 1
If A = 6,12,3,9,4,12 and to search element 6 in this array using binary search method what will be the values of a[mid] generated after each iteration
Choose one answer.
a. 6b. 4,9,6c. 3,4,6d. 4,6

34
Marks: 1
Is n not equal to Omega(n^2)
Answer:
True
False

35
Marks: 1
Which of the following represents the efficiency of the selection sort?
Choose one answer.
a. O (n)b. O(1)c. O(n^ 2)d. O(log n)

36
Marks: 1
What term is used to describe an O(1) algorithm?
Choose one answer.
a. Constantb. Logarithmicc. Quadraticd. Linear

37
Marks: 1
Stack A has entries a, b, c(with a on
Choose one answer.
a. a,b,cb. b,c,ac. b,a,cd. c,a,b