

# LVL2 SET A TEST 1 PROGRAMMING

## Hitbullseye

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Question No: 1

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**DIRECTIONS for the question:** Mark the best option:

Which of the following is true when describing a multicast address?

Packets addressed to a unicast address are delivered to a single interface.

Packets are delivered to all interfaces identified by the address. This is also called a one-to-many address.

Identifies multiple interfaces and is only delivered to one address. This address can also be called one-to-one-of-many.

These addresses are meant for non-routing purposes, but they are almost globally unique so it is unlikely they will have an address overlap.

### Explanation

Correct answer is: B

Question No: 2

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**DIRECTIONS for the question:** Mark the best option:

What is the time complexity of Bellman-Ford single-source shortest path algorithm on a complete graph of n vertices?

$\Theta(n^2)$

$\Theta(n^2 \log n)$

$\Theta(n^3)$

$\Theta(n^3 \log n)$

**Explanation**

Correct answer is: C

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Question No: 3

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**DIRECTIONS for the question:** Choose the option that best expresses the meaning of the given idiomphrases.

He had the press eating out of his hand.

Tamed

Ridiculed

Praised

Mauled

Admired

**Explanation**

Eat out of (someone's) hand - To be manipulated or dominated by another, to be totally submissive to another; be very attentive or servile. Admired contrary to the given statement. mauled means to handle roughly.

Correct answer is: A

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Question No: 4

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**DIRECTIONS for the question:** Mark the best option:

Which of the following Binary Min Heap operation has the highest time complexity?

Inserting an item under the assumption that the heap has capacity to accommodate one more item

Merging with another heap under the assumption that the heap has capacity to accommodate items of other heap

Deleting an item from heap

Decreasing value of a key

#### **Explanation**

Correct answer is: B

Question No: 5

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**DIRECTIONS for the question:** Mark the best option:

Assume, we have a 256KB memory available with us and a monitor of 40KB. Also consider the following task queue

TASK	Memory	TIME
1	60K	10
2	100K	5
3	30K	20

4	70K	8
---	-----	---

FCFS job scheduling would cause immediate external fragmentation of

66K

46K

26K

80K

#### Explanation

Correct answer is: C

Question No: 6

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**DIRECTIONS for the question:** Mark the best option:

In the waiting state \_\_\_\_\_.

The processes are waiting for I/O in the I/O queue

The processes which are running are listed

The processes waiting for the CPU burst are listed

The processes are in blocked state

### **Explanation**

Correct answer is: A

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Question No: 7

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**DIRECTIONS for the question:** Mark the best option:

The depth of a complete binary tree with n nodes is

$$\log_2(n + 1) - 1$$

$$\log_2(n)$$

$$\log_2(n - 1) + 1$$

$$\log_2(n + 1)$$

### **Explanation**

Correct answer is: D

Question No: 8

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**DIRECTIONS for the question:** Mark the best option:

Which of the following is loaded in main memory by a bootstrap loader?

user program

system program

BIOS

part of DOS

**Explanation**

Correct answer is: C

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Question No: 9

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**DIRECTIONS for the question:** Mark the best option:

The average successful search time taken by binary search on a sorted array of 10 items is

2.6

2.7

2.8

2.9

**Explanation**

Correct answer is: D

Question No: 10

---

**DIRECTIONS for the question:** Solve the following question and mark the best possible option.

Which operator is used to compare a value to a specified list of values?

BETWEEN

ANY

IN

ALL

**Explanation**

Correct answer is: C

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Question No: 11

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**DIRECTIONS for the question:** Mark the best option:

The average successful search time for sequential search on 'n' items is.

$n/2$

$(n - 1)/2$

$(n + 1)/2$

$\log(n) + 1$

**Explanation**

Correct answer is: C

Question No: 12

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**DIRECTIONS for the question:** Mark the best option:

A priority queue can efficiently implement using which of the following data structures?

Assume that the number of insert and peek (operation to see the current highest priority item) and extraction (remove the highest priority item) operations are almost same.

Array

Heap Data Structures

Linked List

All of the above

**Explanation**

Correct answer is: B

Question No: 13

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**DIRECTIONS for the question:** Mark the best option:

The page replacement policy that sometimes leads to more page faults when the size of the memory is increased is

FIFO

LRU

no such policy exists

none of the above

**Explanation**

Correct answer is: A

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Question No: 14

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**DIRECTIONS for the question:** Mark the best option:

Consider the following C statements:

- i. `y == 1; y++;`
- ii. `#define max = 30;`
- iii. `y= 1; y - -;`
- iv. `For (i=0; i <= 1; i ++)`  
    {  
        `printf ("i = %dn",i);`  
    }

Which of the statements given above are not correct?

i and ii only

i, ii and iii only

ii and iii only

iii and iv only

#### **Explanation**

Correct answer is: A

Question No: 15

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**DIRECTIONS for the question:** Mark the best option:

An operating system contains 3 user processes each requiring 2 units of resource R. The minimum number of required units of R such that no deadlock will ever occur is

3

4

5

6

#### **Explanation**

Deadlock occurs when each of the 3 user processes hold one resource and makes simultaneous demand for another. If there are 4 resources, one of the 3 user processes will get the fourth instance of the resource and relinquish one or both of the resource(s) it is currently holding after using.

Correct answer is: B

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Question No: 16

**DIRECTIONS for the question:** Mark the best option:

Let n insert and m ( $\leq n$ ) delete operations be performed in an arbitrary order on an empty queue Q. Let x and y be the number of push and pop operations performed respectively in the process. Which one of the following is true for all m and n?

An implementation of a queue Q, using two stacks S1 and S2, is given below:

```
void insert(Q, x) {  
    push (S1, x);  
}  
  
void delete(Q){  
    if(stack-empty(S2)) then  
        if(stack-empty(S1)) then {  
            print("Q is empty");  
            return;  
        }  
        else while (!stack-empty(S1)){  
            x=pop(S1);  
            push(S2,x);  
        }  
        x=pop(S2);  
}
```

$n+m \leq x < 2n$  and  $2m \leq y \leq n+m$

$n+m \leq x < 2n$  and  $2m \leq y \leq 2n$

$2m \leq x < 2n$  and  $2m \leq y \leq 2n$

$2m \leq x < 2n$  and  $2m \leq y \leq n+m$

#### Explanation

Correct answer is: A

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Question No: 17

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**DIRECTIONS for the question:** Mark the best option:

You have an interface on a router with the IP address of 192.168.192.10/29. What is the broadcast address the hosts will use on this LAN?

192.168.192.15

192.168.192.31

192.168.192.63

192.168.192.127

#### Explanation

Correct answer is: A

Question No: 18

---

**DIRECTIONS for the question:** Mark the best option:

An algorithm is made up of two modules M1 and M2. If order of M1 is  $f(n)$  and M2 is  $g(n)$  then the order of algorithm is

$\max(f(n), g(n))$

$\min(f(n), g(n))$

$f(n) + g(n)$

$f(n) \times g(n)$

#### Explanation

Correct answer is: A

Question No: 19

---

**DIRECTIONS for the question:** Mark the best option:

What does below SQL statement describe?

```
SELECT CustomerName, Address + ', ' + City + ', ' + Country AS Address  
FROM Customers;
```

Alias named Address column will be created and under this Address, City and Country will be printed as combined statement.

Alias named Address will be created for Country columns

Alias named Address column will be created and under this all CustomerName, address, city and country will be printed as combined statement

All above options are wrong

#### Explanation

Correct answer is: A

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Question No: 20

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**DIRECTIONS for the question:** Mark the best option:

Which of the following statements is incorrect?

Static RAM stores information by energizing or de-energizing inductors

RAM is memory that can be written and read quickly

RAM is volatile

Dynamic RAM stores information by charging or discharging capacitors

#### Explanation

Correct answer is: A

Question No: 21

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**DIRECTIONS for the question:** Mark the best option:

Given two max heaps of size n each, what is the minimum possible time complexity to make a one max-heap of size from elements of two max heaps?

O(n)

O(nLogLogn)

O(nlogn)

O(nLogn)

#### Explanation

Correct answer is: A

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Question No: 22

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**DIRECTIONS for the question:** Mark the best option:

In the context of CPU utilization, the number of processes completed per unit cycle of time is called as \_\_\_\_\_.

Efficiency

Turnaround time

Response Delay

Throughput

**Explanation**

Correct answer is: D

Question No: 23

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**DIRECTIONS for the question:** Mark the best option:

Correct SQL query syntax to update a record from a table is

```
UPDATE table_name  
SET column1 = value1, column2 = value2, ...  
WHERE condition;
```

```
UPDATE table_name  
SET COLUMN column1 = value1, column2 = value2, ...  
WHERE condition;  
  
UPDATE table_name  
UPDATE column1 = value1, column2 = value2, ...  
WHERE condition
```

```
UPDATE table_name  
column1 = value1, column2 = value2, ...  
WHERE condition;
```

#### Explanation

Correct answer is: A

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Question No: 24

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**DIRECTIONS for the question:** Mark the best option:

Preorder is nothing but

depth-first order

breadth-first order

topological order

linear order

### Explanation

Correct answer is: A

Question No: 25

---

**DIRECTIONS for the question:** Mark the best option:

Let A be a square matrix of size  $n \times n$ . Consider the following program. What is the expected output?

```
C = 100
for i = 1 to n do
    for j = 1 to n do
    {
        Temp = A[i][j] + C
        A[i][j] = A[j][i]
        A[j][i] = Temp - C
    }
for i = 1 to n do
    for j = 1 to n do
        Output(A[i][j]);
```

The matrix A itself

Transpose of matrix A

Adding 100 to the upper diagonal elements and subtracting 100 from diagonal elements of A

None of the above

#### Explanation

Correct answer is: A

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Question No: 26

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**DIRECTIONS for the question:** Mark the best option:

FDM is applied when:

The bandwidth of the link( in hertz) is greater than the combined bandwidth of the signal to be transmitted.

The bandwidth of the link(in hertz) is equal to the combined bandwidth of the signal to be transmitted.

The bandwidth of the link(in hertz) is lesser than the combined bandwidth of the signal to be transmitted.

The bandwidth of the link(in hertz) is equal to the bandwidth of the signal to be transmitted.

### **Explanation**

Correct answer is: A

Question No: 27

---

**DIRECTIONS for the question:** Solve the following question and mark the best possible option.

Which of the following is not a valid SQL type?

DECIMAL

NUMERIC

FLOAT

CHARACTER

### **Explanation**

Correct answer is: A

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Question No: 28

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**DIRECTIONS for the question:** Mark the best option:

Among the following recording modes, which method uses both the objects and mouse coordinates

normal

low level

analog

all of the above

**Explanation**

Correct answer is: B

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Question No: 29

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**DIRECTIONS for the question:** Mark the best option:

A strictly binary tree with 10 leaves

cannot have more than 19 nodes

has exactly 19 nodes

has exactly 17 nodes

cannot have more than 17 nodes

#### Explanation

Correct answer is: B

Question No: 30

---

**DIRECTIONS for the question:** Mark the best option:

Correct syntax query syntax to drop a column from a table is

DELETE COLUMN *column\_name*

DROP COLUMN *column\_name*

ALTER TABLE *table\_name* DROP COLUMN *column\_name*

None is correct

#### Explanation

Correct answer is: C

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syntaxmonk