**Section: Networking**

1. When a source IP is not able to send packets to host or router, how does the network layer acts as an error reporting tool to source IP?
2. The router acts as error detecting tool in network layer.
3. When packets fails to reach the host, the datagram track the failed events and log to the network admin.
4. Internet Control Message Protocol is used as error-reporting protocol which help in error detection.
5. The IP Address of the source system logs the error report.
6. In the Data Link Layer, two hosts run at different speeds and try to transmit the data packet. How can the data packet transmit without error?
7. Stop and wait mechanisms can be used to acknowledge the transmit from the receiver.
8. Sliding window mechanisms can be used where both sender and receiver acknowledge the transmit.
9. ARQ-S mechanisms can be used where only sender acknowledge the transmit.
10. ARQ-R mechanisms can be used where only receiver acknowledge the transmit.
11. A network routing algorithm needs to be developed for a network to ensure speedy and reliable delivery. You need to ensure that the routers will forward the packets along the fastest path based on the current network traffic and the routers are expected to share this information with their neighbours as and when the routing table changes. What kind of routing algorithms should be employed in that case?
12. Adaptive routing algorithm such as Isolation Algorithm.
13. Non-adaptive routing algorithms such as Flooding.
14. Adaptive routing algorithm such as distance vector routing.
15. Non-adaptive routing algorithms such as random Walks.
16. A user is facing issues while accessing Internet Explorer. All other applications are working for her. While accessing any website, an error message is displayed “page cannot be displayed”. Which method should be used for troubleshooting the issue?
17. Bottom-up
18. Top-down
19. Bottom-up
20. Divide and Conquer
21. A company branch is located in two different geographical locations and with different networks. How can communication take place with routers?
22. Virtual data link can be built in between the network for communication.
23. The tunnelling method can be used by two or more networks so they can communicate with each other, by passing intermediate networking.
24. Routers can be deployed between each network and a dedicated link for the communications.
25. Multiple links can be deployed between the networks.

**Section: Linux**

1. Which of the given output is shown when executed on the following shell?

[root@linux]$ foo=”This is test”

[root@linux]$ echo $foo

[root@linux]$ foo= $foo “text”

[root@linux]$ echo $foo

**Options:**

1. This is test
2. Text
3. Nil
4. This is test

This is test text.

1. You ran command , “ls-l output for /etc/passwd and /usr/bin/passwd” and get the following result. If a user, not belonging to the group ‘root’ runs the passwd executable in an attempt to modify his password, then which of the given statements hold true?
2. Password change is successful because the program runs as root.
3. Password change fails since user does not have permission to update /etc/passwd file
4. Password change program runs in kernel mode where write access to the /etc/passwd file is possible.
5. /etc/passwd is a special file and the system be default allows all users to update it.
6. Which of the given output is displayed when executed on the following shell?

[root@linux]$ echo Check-{1,2,3}-back

1. Check 1,2,3
2. Check 1 2 3
3. Check 1 Check 2 Check 3 Back
4. Check-1-Back Check-2-Back Check-3-Back
5. Identify the output of the following code.

x = 3;

y = 5;

z = 10;

if [ ($x-eq 3) -a ($y-eq5-0 $z-eq10 )]

then

echo $x

else

echo $y

fi

1. 3
2. 5
3. 10
4. 18
5. What is the output after executing the given shell script in Linux?

#! /bin/bash number=10 if [ $number = “10”]; then echo “Number is equal to 10”

else echo “Number is not equal to 10 ” fi

1. Compile time error
2. run time error
3. Number is equal to 10
4. Number is not equal to 10

Section: Database Query Languages

1. Observe the following table designs and determine a non-prime attribute in any of these

students(student\_id number, name string)

teachers(teacher\_id number, name string)

course(course\_id number, name string)

student\_course(student\_id number, course\_id number, fees number)

teacher\_salary(teacher\_id number, subject string, salary number )

1. Fees in student\_course table is a non-prime attribute because the table is not in 2NF and there must be a separate table course\_fees(course\_id, fees).
2. Salary in teacher\_salary table is a non-prime attribute because the table is not in 2NF and there must be a separate table subject\_salary(subject\_id, salary).
3. Both salary and fees are non-prime attributes as both are in 1NF but not in 2NF.
4. No nom-prime attribute is present in the given design.
5. Consider an entity user having all the user specific details and status whether they are registered or not.

users(user\_id, name, country, pincode, mobile\_no, status)

Another entity named user\_access having details of the courses which are accessible to a particular user. The rule is that only registered users will have access to any course.

user\_access(user\_access\_id, user\_id\_course)

The requirement is to get result set of all users whether they are registered or not and the courses allotted to them.

1. user\_access LEFT JOIN user
2. user LEFT JOIN user\_access
3. user CROSS JOIN user\_access
4. user RIGHT JOIN user\_access
5. The employees table has following columns:

LAST\_NAME VARCHAR2 (35)

SALARY tNUMBER (8,2)

HIRE\_DATE DATE

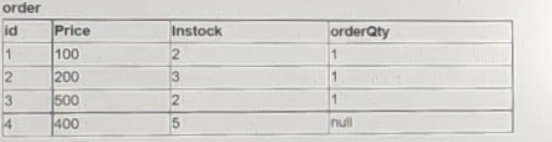
You want to add a default value to the salary column using the following ALTER statement:

1. ALTER TABLE EMPLOYEES MODIFY SALARY DEFAULT 5000;

Which of the given statement is true about ALTER statement?

1. Column definition cannot be altered to add DEFAULT values
2. A change to the DEFAULT value affects only subsequent insertions to the table.
3. Column definitions cannot be altered to add DEFAULT values for columns with a NUMBER data type
4. All the rows that have a NULL value for the SALARY column will be updated with the value 5000

Q4) Given is the data of the table order:



What will be the output of following query:

Select price from order

Where price not in(select min(price) from order)

Order by price asc

Limit 1

**Options**

Price

200

Price

200

400

500

Price

100

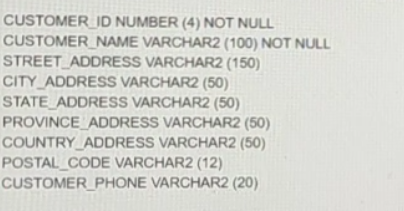
Price

500

400

200

Q5) The CUSTOMERS table has the following columns. The CUSTOMER\_ID column is the primary key for the table



Which of the following expressions will find the number of different countries represented in the table?

**Options**

COUNT(UPPER(country\_address))

COUNT(DIFF(UPPER(country\_address)))

COUNT(UNIQUE(UPPER (country\_address)))

COUNT(DISTINCT(UPPER(country\_address)))

**Pseudo Code**

Q1) What will be the output of the following code if N = 15?

if(N is less than 0) {

print “invalid number”

}

If(N is divisible by 3 AND N is not divisible by 5) {

print “Type 1”

} else if(N is divisible by 5 OR N is not divisible by 3){

print “Type 2”

} else if(N is divisible by 5 AND N is divisible by 3){

print “Type 3”

}

**Options**

Invalid number

Type 1

Type 2

Type 3

Q2) Consider a scenario where a program takes the amount of money that a salesperson has earned for the company on a given day and calculates the commission that the salesperson will receive, which is equal to the difference between the amount earned and 90% of the amount earned for the given day and prints the commission amount to be paid to the person. Which of the following pseudocodes correctly implements this program?

**Options**

Start

Float moneyEarned

GET moneyEarned

SET commission = moneyEarned – (moneyEarned\*90/100)

Print ‘The commission to be paid is ‘, commission

STOP

Start

Float moneyEarned

GET moneyEarned

SET commission = moneyEarned\*(10/100)

Print ‘The commission to be paid is ‘, commission

STOP

Start

Float moneyEarned, commission

GET moneyEarned

SET commission = moneyEarned\*10/100

Print ‘The commission to be paid is ‘, commission

STOP

Start

Float moneyEarned, commission

GET moneyEarned

SET commission = (moneyEarned - moneyEarned\*90)/100)

Print ‘The commission to be paid is ‘, commission

STOP

Q3) Which of the given pseudocodes uses a correct function layout?

**Options**

IF number 1 is odd, output ‘X’

ELSE output ‘Y’

IF x1>x2

{

IF x2>x3

{

Print “x1”

}

ELSE

Print “x2”

}

IF number 1 is larger than number 2

Print “number 1 is larger”

ELSE

Print “number 2 is larger”

IF x1>x2

Print “x1”

ELSE

Print “x2”

Q4) Consider the following pseudocode:

What will be the output of this program if the input is 9?

START

Integer NumHours, Regular, Overtime, PayAmount, RegPay, OverPay

GET NumHours

SET Regular = 8

SET RegPay = 10

SET OverPay = 5

SET Overtime = NumHours – Regular

IF(Overtime>0)

THEN

SET PayAmount = (Regular + RegPay) + (Overtime + OverPAy)

ELSE

SET PayAmount = NumHOurs + RegPay

END IF

Print “The amount to be paid is: “, PayAmount

END

**Options**

The amount to be paid is 90

The amount to be paid is 95

The amount to be paid is 80

The amount to be paid is 85

Q5) Choose the correct pseudocode for the given program that displays Fibonacci series numbers upto 50

int main()

{

int a, f, x1, x2, fib;

if(a<2) return a;

else {

x1 = x2 = 1;

for(f = 2; f<a;f++)

{

fib = x1 + x2 ;

x2 = x1;

x1 = fib;

}

return fib;

}

**Options**

Declare an integer variable called a

Declare an integer variable fib

Declare an integer variable x1

Declare an integer variable x2

Set loopcounter to 2

Values

Set fib to 0

Set x1 and x2 to 1

Set a to 50

Repeat a times

sum = x1 + x2

x2 = x1

x1 = fib

print fib

end loop

Declare an integer variable called a

Declare an integer variable fib

Declare an integer variable x1

Declare an integer variable x2

Set loopcounter to 2

Values

Set x1 and x2 to 1

Repeat a times

sum = x1 + x2

x2 = x1

x1 = fib

print fib

end loop

Declare an integer variable called a

Declare an integer variable fib

Declare an integer variable x1

Declare an integer variable x2

Values

Set fib to 0

Set x1 and x2 to 2

Set a to 10

sum = x1 + x2

x2 = fib

x1 = x2

print fib

end loop

Declare an integer variable called a

Declare an integer variable fib

Declare an integer variable x1

Declare an integer variable x2

Set loopcounter to 2

Set fib to 0

Set x1 and x2 to 1

Set a to 50

x2 = x1

x1 = fib

print fib

end loop

**Software Testing**

Q1) Which process helps in improving the quality of a test case?

**Options**

Requirement Review

Recruiting good testers

Requirement walk through

Test case review

Q2) How do you ensure test coverage?

**Options**

By having more count of test cases

By testing all test cases

By mapping test case to requirement and making test case for missing ones

By having experienced testers

Q3) if a test case review was done in a day for 300 test cases and 10 review comments were found, what is the review effectiveness?

**Options**

10

30

300

100

Q4) A project needs 20% of the coding effort as test execution effort and 80% of that as test case preparation . If coding effort is 100PD(person days) what is the total test effort?

**Options**

40 PD

20PD

36PD

50PD

Q5) Execution time for complex test cases is 2 hours/tc(test case), medium test cases 1 hr/tc and simple test cases 0.5 hr/tc. If there are 100 simple, 50 medium and 30 complex test cases and 50% of this need to be re-executed then what is the total effort if the no. of working hours per day is 9.6 hrs?

**Options**

20 days

30 days

35 days

25 days

**Software Testing Methodologies**

Q1) What are the objectives of Load/Performance testing?

**Options**

1. Evaluate performance acceptance criteria
2. Identify critical scenarios
3. Design workload model
4. Identify the target load levels
5. Design the tests
6. Execute tests
7. Analyze the results
8. Integration response
9. Server response
10. Storage
11. Database response
12. Test output generation time
13. Response time
14. Throughput
15. Resource utilization
16. Maximum user load
17. Business related metrics
18. 3rd party server response
19. Scalability
20. Data integrity
21. Data conversions
22. Variations

Q2) Which of the following is/are not a set of objectives of launching a tool/application on pilot basis or as a pilot project?

**Options**

To learn more about the tool and in detail from a user’s perspective

To see how the tool would fit with existing processes or documentation

To decide on standard ways of using the tool what will work for all potential users

To find early detect from production scenarios

Cost effective and pre advertisement

To target the audience and users of particular age group

To get public review

To know the market interest about your product then start with actual production

To minimize the risk of failing

Reliability

To create a final approval report/final launch is required. Pilot test just increases the cost of project

Pilot test are just required to be followed as per the procedure but not useful

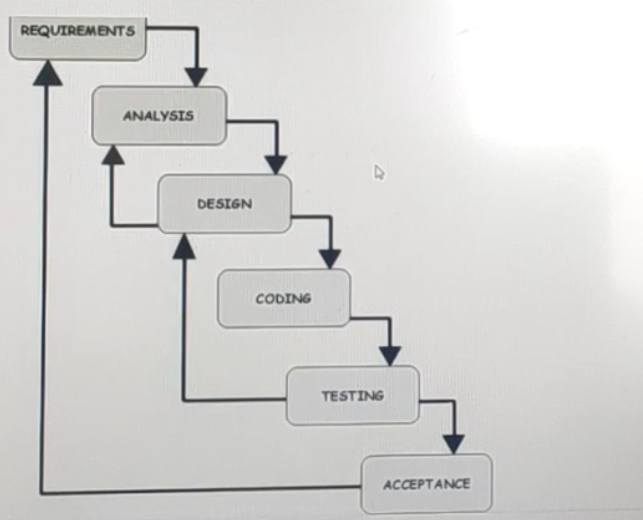
To follow the system procedures leading no results

Q3) You need to perform regression testing before delivering a change request for an application. What are the basis on which you will select test cases for the same?

**Options**

1. All the test cases that were created in the design phase
2. Test cases with least usable functionalities as you might skip those while doing E2E testing
3. Test cases with least defects
4. All the passed test cases again
5. All the test cases suggested by BA & development
6. Need to check client priority test cases
7. All integration test cases
8. All unit test cases
9. Only need to run automation test suite
10. Need to run most stable test case to generate good report to client
11. All smoke test scenarios
12. All complex test cases
13. Boundary value test cases
14. Test cases which have frequent defects
15. Functionalities which are more visible to the users
16. Test cases which verify core features of the product
17. Test cases of functionalities which have undergone more and recent changes
18. All integration test cases
19. Boundary value test cases
20. A sample of failure test cases

Q4)



Identify the model represented by following diagram:

**Options**

Spiral model

V Model

Waterfall model

Agile model

Q5) You are working in a manual testing project. The client wants to automate the regression test cases. How will you find the automation tool that is best suited for your project?

**Options**

We will take client suggestions

We will see the scope of automations

We will look for freeware tool

We will look for freeware tool

The build and continuous integration tools already in use within the organization

Consideration of whether or not the tool is available for a free trial period

Application independent testing framework automation tool

Select a tool that is compatible with that technology used by the test object

Consideration of pros and cons of various licensing models

consider cost-benefit ration based on a business case

evaluation of the total against clear requirements and objective criteria

consideration of whether or not the tool is available for free trial period

The build and continuous integration tools already in use within the organization, in compatibility and integration

Evaluation of training needs, considering the testing(and test automation)skills of person directly with the tools

Build management tool

Continuous integration tool

**Section: Coding Question**

1. Interns

A company has hired N inters, labeled from 1 to N. Each intern is given a device which generates a number everyday that will be used as a password for their authentication at the office door every day in the morning. The internship if or 50 days numbered from 0 to 49. Initially (on the first day), the number in the device of the K-th intern will be equal (5000\*k).

From the second day (i.e, i=1), a new number will be generated every day in each device in the following way:

* Day(i)= Day(i-1) + 5000 + i

Find the label of an intern from the given password used by him/her.

**Input Specification:**

Input1: N, number of interns

Input2: P, password used

**Output Specification:**

Return the label of the intern to whom the given password belongs to.

**Example 1:**

Input1: 2

Input2: 5000

Output: 1

Explanation:

5000 is the number of the first intern on day 0.

**Example 2:**

Input1: 10

Input2: 25003

Output: 3

Explanation:

15000 is the number of the third internon day 0, 20001 is the number of the third intern on day 1, 25003 is the number of the third intern on day 2.

**MCQs**

**Data Structures**

1. Which of the following functions is valid to perform insertion sort?
2. void Function(int arr[]){

int n=arr.length;

for (int i=0; i<n; ++i) {

int pivot=arr[i];

int j=i-1;

while(j>=0 && arr[j] >pivot) {

arr[j+1] = arr[j];

j=j-1;

}

arr[j+1]= pivot;

}

}

1. void Function(int arr[]){

int n=arr.length;

for (int i=1; i<n; ++i) {

int pivot=arr[i];

int j=i-1;

while(j>=0 && arr[j] >pivot) {

arr[j+1] = arr[j];

j=j-1;

}

arr[j+1]= pivot;

}

}

1. void Function(int arr[]){

int n=arr.length;

for (int i=0; i<n; ++i) {

int pivot=arr[i];

int j=n-i;

while(j>=0 && arr[j] >pivot) {

arr[j+1] = arr[j];

j=j-1;

}

arr[j+1]= pivot;

}

}

1. void Function(int arr[]){

int n=arr.length;

for (int i=1; i<n; ++i) {

int pivot=arr[i];

int j=i+1;

while(j>=0 && arr[j] >pivot) {

arr[j+1] = arr[j];

j=j+1;

}

arr[j+1]= pivot;

}

}

1. Consider an array of integers with the elements as shown.

int arr1[5] = {1,2,3,4,5,6,7,8}

What would be the output of the printf(“value of %d\n”, arr1[9]) ?

1. Gives a warning message printed 3 times alongwith 0 or garbage value.
2. 0
3. Compilation error
4. Unexpected value
5. A Fibonacci series is implemented using recursion.

int generateFibonacciSeries(int num){

if(num <=1)

return num;

return generateFibonacciSeries(num-1)+generateFibonacciSeries(num-2)

}

Which of the following is true about this?

1. Bottom up approach as it is calculating values each time.
2. Top down approach as it is calculating values each time.
3. Bottom up approach as it is caching the previously computed results.
4. Top down approach as it is caching the previously computed results.
5. You have implemented a stack using two queues. The stack should support push operation in O(1) time. How many enqueue/dequeue operations on the queues are required to support the following sequence of stack operations?

push(5);

push(6);

pop();

push(3);

push(4);

pop();

1. 7 enqueue 5 dequeue
2. 8 enqueue 6 dequeue
3. 7 enqueue 6 dequeue
4. 8 enqueue 5 dequeue
5. What would be the array immediately after the 7th call to merge when to-down merge sort is used to sort the following array?

15 98 66 24 76 33 19 82 10 50 75 48

1. 15 24 33 66 76 98 10 19 82 50 75 48
2. 15 24 33 66 76 98 19 82 10 50 75 48
3. 15 66 98 24 33 76 19 82 10 50 75 48
4. 15 66 98 24 76 33 19 82 10 50 75 48

**Section: Algorithms**

1. Find out the longest common subsequence Z of the following two given strings:

X= {A, A, A, C, B, B, C, D}

Y= {A, B, C, D, A, B}

1. Z= (A, B, A, B)
2. Z= (A, B, C, D)
3. Z= (A, A, B, D)
4. Z= (A, B, C, A)
5. What is the functionality of the following piece of code?

public int function()

{

Node temp= tail.getPrev();

tail.setPrev(temp.getPrev());

temp.getPrev().setNext(tail);

size--;

return temp.getItem();

}

1. Return the element at the tail of the list but do not remove it.
2. Return the element at the tail of the list but remove it from the list.
3. Return the last but one element at the tail of the list and remove it from the list.
4. Return the last but one element from the list but do not remove it.
5. Find out the time complexity of given recurrence relation:

Tn= { 1 if n=1

8T(n/2)+n2 if n>1 }

1. O(n)
2. O(nlogn)
3. O(n2)
4. O(n3)
5. An IT company uses a compression technique to encode the original message before transmitting in network. The message contains the following characters with their occurency:

Character: a e i o u s t

Occurency: 7 9 15 25 13 5 12

If the compression technique used is Huffman Coding, then how many bits are to be sent in the message?

1. a = 0111, e=010, i=00, o=11, u=101, s=0110, t=100
2. a = 0101, e=100, i=00, o=11, u=101, s=0110, t=1001
3. a = 001, e=100, i=100, o=11, u=101, s=10, t=10
4. S1 but not S2
5. Consider the following two inputs:

S1: 1, 2, 3, 4, 5 ………….n

S2: n, n-1, n-2, n-3 ………2,1

Let C1 and C2 no. of comparison made for the input S1 & S2 respectively. Which of the following options is true?

1. C1>C2
2. C1<C2
3. C1==C2
4. none