TCS Ninja NQT – 2020 Sample Test Solution

This document contains the questions that appeared in the sample test released by TCS team recently for 2020 pass-outs. It will help students to understand the test level, type of questions that might appear in the NQT 2020 test. However this sample test pattern/questions cannot be considered as actual TCS NQT - 2020 test pattern/questions. The actual NQT pattern/questions might differ from sample test.

English

Passage 1:

In recent years, there have been a lot of talk about cloud computing and cloud storage. Almost everything in the digital world _____Q1_____ connected to the cloud in some way or other-unless it is kept in local storage for security reasons. A tech giants and startups ____Q2____ new ways to organize, process and present data, cloud computing ___Q3____ become a more and more integral part of our lives. So what is cloud computing? And what is the impact of cloud computing on future business strategies? Cloud computing is the ____Q4___ of using network of remote servers ___Q5___ on the internet to store manage and process data, rather than a local server or personal computer.

Q1

a. are
b. is
c. was

Answer: b

Q2.

a. founded
b. found
c. find

Answer: c

Q3.

a. would
b. will
c. shall

Answer: b

Q4.

a. Practices
b. Practicing
c. Practice

Answer: c

Q5.

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a. hosting
b. hosted
c. host

Answer: b

Passage 2:

The internet Of Things (IOT) is ____Q6___ rapidly evolving technology, and ___Q7____ any other technology, it can ____Q8____ challenges with respect to ___Q9____ implementation and management. Given the ____Q10____ interconnectivity required, and the large volumes of data generated, setting up an IOT ecosystem can be a complex task.

Q6

a. the
b. an
c. a

Answer: c

Q7.

a. likeness
b. like
c. likely

Answer: b

Q8.

a. pose
b. position
c. post

Answer: a

Q9.

a. It's
b. It is
c. Its

Answer: c

Q10.

a. advancing
b. advanced
c. advance

Answer: b

Passage 3:

Human-machine collaboration ___Q11___ the production line has become ____Q12____ flexible, versatile and therefore more productive. Today's robots are much more capable of ___Q13___ tasks

that they could not perform well earlier such as ___Q14__ around object placed __Q15___ and sorting out complex writing issues in industries like aerospace.

Q11

a. at
b. two
c. on

Answer: c

Q12.

a. more
b. most
c. much

Answer: a

Q13

a. learned
b. learn
c. learning

Answer: c

Q14

a. move
b. moving
c. to move

Answer: b

Q15.

a. Chaotically
b. Chaos
c. chaotic

Answer: a

Quantitative Aptitude

Q1.

Salaries of Usha and Eesha are in the ratio 2:3. If the salary of each is increased by Rs. 4000, the new ratio becomes 40:57. What is Eesha's salary?

a. 38000
b. 17000
c. 34000
d. 20000

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Option A: 38000

Explanation:

Let the original salaries of Usha and Easha be Rs. 2x and Rs. 3x respectively.

Then,

(2x+4000) / (3x+4000) = 40 / 57

⇒ 57 × (2x + 4000) = 40 × (3x+4000)

⇒ 6x = 68,000

⇒ 3x = 34,000

Easha's present salary = (3x + 4000) = Rs.(34000 + 4000) = Rs. 38,000

Q2.

Eesha, Babu and Chitra work in a handicraft factory. Eesha alone takes 10 hours to complete a single product but Babu and Chitra working together takes 4 hours, for the competition of the same product. If all of them worked together and completed 14 products, then how many hours have they worked?

a. 20 hrs
b. 28 hrs
c. 54 hrs
d. 40 hrs

Option D: 40 hrs

Explanation:

Let's they start by 8:00 AM

Easha will complete 1 product by 6:00 PM

In this duration Babu and Chitra would complete 2.5 prodcuts.

So in 10 hours 3.5 products can be ready.

10 Hours ---------- 3.5 prodcuts

20 hours ---------- 7 products

Hence, 14 products will be ready by 40 hours.

Q3.

Goel's mother kept a box of chocolates in the refrigerator. Goel put up a daily plan of how many chocolates he would consume in the week. He represented that as diminishing stock as 60, 48, 38, 28, 24, 20, 18. Mother said that his plan would be approved, provided he corrected one of the figures to make it a proper series. Which one did Goel correct?

a. 28
b. 36
c. 48
d. 20

Option A: 28

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Explanation:

The series is given as 18, 20, 24, 28, 38....

The logic is that even numbers are being added

18+2=20

20+4=24

24+6=30

30+8=38

So here 28 is wrong

It should b replaced by 30

Hence, 28 is the answer.

Q4.

An urn contains 6 yellow, 5 blue and 2 white marbles. If three marbles are picked at random, what is the probability that at least one is blue?

a. 28/143
b. 115/143
c. 115/197
d. 28/197

Option B: 115/143

Explanation:

Total sample space = $^{13}C_3$

Number of ways to pick at least one blue marble = $^5C_3 + {}^5C_2 x {}^6C_1 + {}^5C_2 x {}^2C_1 + {}^5C_1 \times {}^2C_1 \times {}^6C_1 + {}^5C_1 \times {}^2C_2 + {}^5C_1 \times {}^6C_2 = 230$

Or else

we can consider yellow and white ball as a single color ball to make our calculation easy.

6+2 = 8

$^5C_3 + {}^5C_1 \times {}^8C_2 + {}^5C_2 \times {}^8C_1 = 230$

Hence, Provability = Number of ways to pick at least one blue / Total Sample Space

= 230/286

= 115/143

Q5.

The arithmetic mean of the nine numbers in the set {9, 99, 999, 9999,....., 999999999} is a 9-digit number M, all of whose digits are distinct. Which of the following digits is not contained in M?

a. 6
b. 4
c. 2
d. 0

Option D: 0

Explanation:

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We need to find out (9 + 99 + 999 + 9999 + ……999999999)/9 = 9 (1 + 11 + 111 + ……111111111)/9 = 123456789 = M
Hence, M will not have 0 digit in it.

Q6.

(Question is incomplete.)

A similar question could be:
In a certain bathtub, both the cold-water and the hot-water fixtures leak. The cold-water leak alone would fill an empty bucket in c hours and the hot-water leak alone would fill the same bucket in h hours, where c<h. If both fixtures began to leak at the same time into the empty bucket at their respective constant rates and consequently it took t hours to fill the bucket, which of the following must be true?
I. $0 < t < h$
II. $c < t < h$
III. $c/2 < t < h/2$

a. I only
b. II only
c. III only
d. I and III

Option D: I and III
Explanation:
I. $0 < t < h$. That is always correct, as the time needed for both fixtures leaking (working) together to fill the bucket, t, must always be less than time needed for either of fixture leaking (working) alone to fill the bucket;

II. $c < t < h$. That cannot be correct: tt, the time needed for both fixtures leaking (working) together to fill the bucket, must always be less than time needed for either of fixture leaking (working) alone to fill the bucket. So c<tc<t not true.

III. $c/2 < t < h/2$. To prove that this is always correct we can use pure logic or algebra.

Logic:
If both fixtures were leaking at identical rate then $c/2 = h/2 = t$ but since
$C < h$ then $c/2<t$ (as the rate of cold water is higher) and $t < h/2$ (as the rate of hot water is lower).
Given: $c < h$ and $t = ch/(c + h)$
$c/2 < ch/(c+h) < h/2$? Break down: $c/2 < ch/(c+h)$? and $ch/(c+h) < h/2$?
$c/2 < ch/(c+h) \rightarrow c^2 + ch < 2ch$? -> $c^2 < ch$? $\rightarrow c < h$? (Now this is given to be true)
$ch/(c+h) < h/2$? $\rightarrow 2ch < ch + h^2$? $\rightarrow ch < h^2 \rightarrow c < h$ (Now this is given to be true)
Hence, always III is true.

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Thus answer will b**e I and III**

Q7.

The sum of 2nd and 19th elements of an arithmetic progression is equal to sum of 8th, 12th and 15th elements of progression. Then, which elements of the series should necessarily be equal to zero?

a. 21st
b. 13th
c. 14th
d. 18th

Option C: 14th

Explanation:

Let's assume a is the first term and the common difference is d.

Hence,

2nd term = a + d

19th term = a + 18d

8th term = a + 7d

12th term = a + 11d

15th term = a + 14d

Given that:

a + d + a + 18d = a + 7d + a + 11d + a + 14d

2a + 19d = 3a + 32d

a + 13d = 0 = 14th term

Q8.

A grocer stacks oranges in a pyramid-like stack whose rectangular base is 5 oranges by 8 oranges. Each orange above the first level rests in a pocket formed by four oranges below. The stack is completed by a single row of oranges. How many oranges are in the stack?

a. 100
b. 96
c. 101
d. 98

Option A: 100

Explanation:

There are 5 x 8 = 40 oranges on the 1st layer of the stack. The 2nd layer that is added on the top of the first will be layer of 4 x 7 = 28 oranges. When the third layer is added on the top of 2nd , it will be a layer of 3 x 6 = 18 oranges etc.

Therefore, there are 5 x 8 + 4 x 7 + 3 x 6 + 2 x 5 + 1 x 4 = 40 + 28 + 18 + 10 + 4 = 100 oranges in the stack.

Q9.

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In an election between two candidates, one got 55% of the total valid votes, 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:

a. 3000
b. 2700
c. 2900
d. 3100

Option B: 2700

Explanation:

Total number of votes = 7500
Given that 20% of Percentage votes were invalid
=> Valid votes = 80%
Total valid votes = 7500 x 80/100
1st candidates got 55% of the total valid votes.
Hence the 2nd candidates should have got 45% of the total valid votes.
=> Valid votes that 2nd candidates got = Total valid votes x 45/100
7500 x 80/100 x 45/100 = 75 x 4/5 x 45 = 75 x 4 x 9 = 300 x 9 = 2700
Total Valid votes that 2nd candidates got = 2700

Q10.

A train traveling at 72 kmph crosses a platform in 30 seconds and a man standing on the platform in 18 seconds. What is the length of the platform in meters?

a. 240 meters
b. 360 meters
c. 420 meters
d. 600 meters

Option A: 240 meters

Explanation:

Speed of the train in m/s = (72/36) x (5/18) = 20 m/s
Distance travelled by train to cross the platform = 30 * 20 = 600 = Length of train + Length of platform
Distance travelled by train to cross the man = 18 * 20 = 360 = Length of train
Length of platform = 600 - 360 = 240 m

Q11.

A number when divided by a divisor leaves a remainder of 24. When twice the original number is divided by the same divisor, the remainder is 11. What is the value of the divisor?

a. 37
b. 13
c. 35
d. 59

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Option A: 37

Explanation:

x divided by d, the remainder is 24:

x = md + 24 (where m is a non-negative integer)

2x divided by d, the remainder is 11:

2x = nd + 11 (where n is a non-negative integer)

nd + 11 = 2*(md + 24)

nd + 11 = 2md + 48

nd - 2md = 37

(n-2m)*d = 37

37 is prime number. Since d cannot be 1 (because any number divided 1 will not leave any remainder) and (n-2m) must be an integer, therefore d must be 37.

Q12.

If the product xy is negative, which of the following must be true?

a. x/y<0
b. x<0
c. y<0
d. x/y>0

Option A: x/y<0

Explanation:

Given that xy = Negative

There could be two possible case:

- x is negative, y is positive
- x is positive, y is negative

The option which is correct must satisfy all the condition:

Option a

Case 1: (-)/(+) result will be less than 0

Case 2: (+)/(-1) result will be less than 0

Hence option A is correct.

Option B and C cannot be the answer because it gives individual values of x and y but not both at the same time.

Q13.

In a class, 120 students are male and 100 students are female. 25% of the male students and 20% of the female students are engineering students. 20% of male engineering students and 25% of female engineering students passed the final exam. Find the percentage of engineering students who get passed.

a. 16%

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b. 22%
c. 5%
d. 10%

Option B: 22%

Explanation:

20% of the male engineering students and 25% of the female engineering students passed the final exam.
What percentage of engineering students passed the exam?
There are 100 female students in the class, and 20% of them are Engineering students.
Now, 20% of 100 equals (20/100) x 100 = 20
Hence, the number of female engineering students in the class is 20.
Now, 25% of the female engineering students passed the final exam:
25.
Hence, the number of female engineering students who passed is 5.
There are 120 male students in the class. And 25% of them are engineering students.
Now, 25% of 120 equals (25/100)x120 = (1/4) x 120 = 30
Hence, the number of male engineering students is 30.
Now, 20% of the male engineering students passed the final exam:
20.
Hence, the number of male engineering students who passed is 6.
Hence, the total number of engineering students who passed is:
(Female Engineering students who passed)+ (Male Engineering students who passed)
= 5 + 6
Hence, the total number of engineering students who passed is:
(Number of female engineering students) + (Number of Male engineering students) = 30 + 20 = 50
Hence, percentage of engineering students who passed is:
(Total number of engineering students who passed/Total number of engineering students) x 100
= (11/50) x 100
= 22%

Q14.

The average of 5 consecutive integers starting with m as the first integer is n. What is the average of 9 consecutive integers that start with (m + 2)?

a. n + 4
b. n + 3
c. m + 5
d. n + 6

Option A: n+4

Explanation:

If the first of the five consecutive integers is m, then the four remaining integers are m + 1, m + 2, m + 3, and m + 4. Since the average of any number of consecutive integers is also the median, the average is m + 2. So, n = m + 2.

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Likewise, if the first of the nine consecutive integers is m + 2, then the eight remaining integers are m + 3, m + 4, m + 5, m + 6, m + 7, m + 8, m + 9, and m + 10. Again, since the average of any number of consecutive integers is the median, the average is m + 6. Since m + 2 = n, m + 6 = n + 4. So, **n + 4** is the average of the nine consecutive integers.

Q15.

How many keystrokes are needed to type numbers from 1 to 1000 on a standard keyboard?

a. 3001
b. 2893
c. 2704
d. 2890

Option D: 2893
Explanation:
While typing numbers from 1 to 1000, you have 9 single digit numbers from 1 to 9. Each of them requires one keystroke. That is 9 key strokes.
There are 90 two-digit numbers, from 10 to 99. Each of these numbers requires 2 keystrokes. Therefore, one requires 180 keystrokes to type the 2 digit numbers.
There are 900 three-digit numbers, from 100 to 999. Each of these numbers requires 3 keystrokes. Therefore, one requires 2700 keystrokes to type these 3 digit numbers.
Then 1000 is a four-digit number which requires 4 keystrokes.
Totally, therefore, one requires 9 + 180 + 2700 + 4 = 2893

Programming Concepts

Q1.

Which statement about recursion is FALSE?

a. Recursion is always applicable for a function
b. In recursive function only termination condition (base case) is spelled
c. Does not use stack
d. If the function does not converge to some condition (called base case), it leads to infinite recursion.

Option A: Does not use stack
Explanation:
Recursion can be done using the stack.

Q2.

In “C” language, we can find the length of a string using which function

a. charlength
b. charlen
c. strlen

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d. strlength

Option D: strlen
Explanation:
The strlen() function calculates the length of a given string.The strlen() function is defined in string.h header file. It doesn't count null character '\0'

Q3.

The "C" builtin function to release dynamic memeory is

a. release
b. dispose
c. deallocate
d. free

Option A: free
Explanation:
The memory allocated using functions malloc() and calloc() are not de-allocated on their own. Hence the free() method is used, whenever the dynamic memory allocation takes place. It helps to reduce wastage of memory by freeing it.

Q4.

Which of the below is a fundamental data type in "C" language:

a. None of the other 3 options
b. union
c. structure
d. Boolean

Option A : None of the other 3 options
Structure and union are user defined data types
Fundamental data types are int, float, char and double.

Q5.

Which statement is correct about circular linked list?

a. There are no pointers to NULL
b. Doubly linked list is NOT possible to implement
c. Can be used to implement undo feature in the word processing
d. A node can be inserted but cannot be deleted

Option B: There is no pointer that points to NULL
Explanation:
Circular linked list is a linked list where all nodes are connected to form a circle. There is no NULL at the end.

Q6.

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Which of the below is NOT a predefined file stream in “C” language?

a. Stdin
b. Stdout
c. Stdio
d. stderr

Option C : stdio
Explanation:
Predefined file streams in the C language are stdout, stdin and stderr
The inbuilt functions like printf(), scanf() are declared in stdio.h header file
“stdio” is not a predefined file stream.

Q7.

Which of the below data type occupies the most amount of memory

a. Int
b. Float
c. Double
d. Char

Option C: double
Explanation:
int occupies 2 or 4 bytes(depends on the compiler)
char occupies 1 byte
float occupies 4 bytes
double occupies 8 bytes
Hence “double” occupies the most amount of memory

Q8.

What is the output of the following code snippet?

```
#Include main()
{
int const a = 5;
a++;
printf(“%d”, a);
}
```

a. Compile time error
b. 6
c. 5
d. Run time error

Option A: Compile time error
Explanation:
Whenever we use const qualifier with variable name, it becomes a read-only variable.
Any attempt to modify this read-only variable will result in a compilation error.

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Q9.

Size of operator is used to get the size of

a. data type or variable
b. data type only
c. program file in memory
d. available free memory

Option A: data type or variable
Explanation:
Sizeof() operator is used to get the size of variable or data type.

Q10.

A queue is what type of data structure?

a. Sequential access
b. circular list
c. first in first out
d. last in first out

Option C: First in first out
Eplanation:
A Queue is a linear structure which follows the First In First Out (FIFO) order or Last In Last Out (LILO) order.

Coding

Write a program as per the below specification:

1) Accept one integer number (which will be a 2 digit number from STDIN
2) Interchange the 2 digit of this number
3) Print the resulting number of STDOUT For example, if the input value is 21, the program will print 12 to STDOUT it can be assumed that the input value will be such that, there will be NO zero as any of the 2 digits, Other than the calculated numerical output value, no other srtings /messages should be printed to STDOUT

Coding Solution:

```
#include<stdio.h>
int main() {
   int num;
   scanf("%d", &num);
   int n = ((num % 10 ) * 10) + num / 10;
   printf("%d", n);
}
```