TCS off campus drive – Test Pattern Details

Section	Duration	No. of Questions
Verbal Ability	10 mins	10
Quantitative Aptitude	40 mins	20
Programming Concepts	20 mins	10
Coding	20 mins	1

Once you clear the TCS online test, then students will be called for personal interview. Post the assessment, interview date and location will be communicated to the candidates individually.

TCS off campus drive – Syllabus

The syllabus for TCS off campus drive 2018 is given section-wise in the below table. This is the syllabus followed by TCS in its latest recruitment process which happened in September.

TCS Quantitative Aptitude Syllabus

- Number system
- HCF & LCM
- Time, Speed & Distance
- Mixtures & Allegations
- Time & Work, Percentages
- Permutation & Combination
- Profit & Loss
- Functions
- Series & Progression
- Equations
- Blood Relations
- Algebra, Averages
- Geometry
- Clocks & Calendar

TCS Verbal Ability Syllabus

- Sentence Completion (Cloze Test)

TCS Programming Concepts Syllabus

Programming Concepts:
Iteration, recursion, procedural vs OOp.
C Language: call by value/reference, basic and derived data types, storage class, scope and visibility, basics of pointers, basic header files, library functions, branching and looping, command line arguments, user-defined functions.

Algorithms:
Basic search algorithms, basic sort algorithms (tree traversal, dynamic programming, etc)

Data Structures:
Array, Stack, Queue, List (tree, hash table, etc)

TCS Coding Syllabus

Instructions

1) Only One question, 20 minutes.
2) Choice of C / C++ / Java / Perl / Python 2.7.
3) Provided an IDE to debug.
4) For Java, the class name should be named Maze.
5) Input to the program either through STDIN / Command line arguments, as per the instructions.
6) Program should write the output to STDOUT.
7) Public and private test cases based evaluation.

Points to note

1) While printing the output no leading or trailing spaces should be printed.
2) Other than the required output, no other text should be printed.
3) If the output is a number, no leading sign must be printed unless it is a negative number.
4) No scientific notation (3.9265E + 2).
5) All floating point numbers must contain that many decimal places as mentioned in the question.

TCS Aptitude Questions

Acing TCS Aptitude Questions is the easiest compared to other sections in the TCS selection process. The TCS aptitude questions are not asked from high-level concepts like calculus but from basic high-school math concepts.

TCS Aptitude Questions: Preparation Strategy

- Brush up on all the concepts specified in the TCS syllabus.
- Practice at least 10 – 20 TCS aptitude questions per topic. This increases your exposure in the topic and also helps you solve faster.
- Learn some shortcuts and time-saving tips and tricks. This will help you choose the easy questions first and solve faster thereby giving more time to solve harder questions.

	Duration	**No of questions**	**Question type**
Quantitative Aptitude	40 mins	20	MCQ and FIB

Skills Required: Basic problem-solving capability; High School level of mathematical conceptual understanding.

TCS Aptitude Syllabus

Permutations and Combinations

- Counting Basics- Permutations and Combinations
- Principle of Inclusion and Exclusion
- Probabilit

Algebra

- Basic Identities
- Arithmetic and Geometric Progressions
- Binomial theorem
- Roots of polynomials
- Mean, median and mode

Arithmetic

- Time and Distance
- Averages
- Percentages
- Simple and Compound interest
- Modulo arithmetic

Trigonometry

- Trigonometric Ratios
- Heights and Distances

Geometry

- Pythagoras theorem
- Congruence and Similarity of Triangles
- Areas of geometrical shapes

TCS Aptitude Questions Sample

1. How many number plates can be made if the number plates have two letters of the English alphabet (A-Z) followed by two digits (0-9) if the repetition of digits or alphabets is not allowed?

a. 56800
b. 56500
c. 52500
d. 58500

Answer: 58500

2. A,B and C can together do some work in 72 days. A and B together do two times as much work as C alone, and A and C together can do our times as much word as B alone. Find the time taken by C alone to do the whole work.

a. 144 days b. 360 days c. 216 days d. 180 days

Answer: 216 days

3. In a cricket tournament, 16 school teams participated. A sum of Rs.8000 is to be awarded among them as prize money. If the team placed last is award Rs.275 as prize money and the award increases by the same amount for successive nishing places, how much will the team placed rst receive?

a. 1000
b. 500
c. 1250
d. 725

Answer: 725

4. A and B completed a work together in 5 days. Had A worked at twice his own speed and B half his own speed, it would have taken them 4 days to complete the job. How much time would it take for A alone to do the job?
a. 10 days b. 20 days c. 25 days d. 15 days

Answer: 10 days

5. Eesha's father was 34 years of age when she was born.her younger brother, Shashank, now that he is 13,is very proud of the fact that he is as tell as her, even though he is three years younger than her. Eesha's mother , who is shorter than Eesha,was only 29 when Shashank

was born .what is the sum of the ages of Eesha's parents now?

a. 92 b. 76 c. 66 d. 89

Answer: 92

6. A sum of Rs 2387 is divided into three parts in such a way that one fth of the rst part,one half of the second part and fourth one the third part are equal. Find the sum of ve times the rst part,three times the second part and four times the third part (in rupees).

a. 9982
b. 7812
c. 9114
d. 10199 **Answer:** 10199

7. Apples cost L rupees per kilogram for the rst 30 kilograms and Q rupees per kilogram for each additional kilogram. If the price paid for 33 kilograms of apples is Rs. 1167 and for 36 kilograms of apples is Rs. 1284, then the cost of the rst 10 kgs of apples is:

a. Rs.117 b. Rs.1053 c. Rs.350 d. Rs.281

Answer: Rs.350

8. A, B and C can together do some work in 72 days. A and B together do two times as much work as C alone, and A and C together can do four times as much work as B alone. Find the time taken by C alone to do the work.

a. 144 days b. 360 days c. 216 days d. 180 days

Answer: 216 days

9. A and B are traveling in the same duration. B is traveling at a constant speed of 55kmph and the distance between A and B is 1.5 km. If A crosses B within 1 minute, what is the speed of A?

Answer: 145 kmph

10. In a test with 26 questions, ve points were deducted for each wrong answer and eight points were added for every correct answer. How many were answered correctly if the score was zero?

a. 11 b. 10 c. 13 d. 12

Answer: 10

11. In a week in July the average daily temperature of Monday to Wednesday was 27 degrees and of Tuesday to Thursday was 24 degrees.if the temperature remained constant throughout in any given day.

a. 20 b. 22 c. 18 d. 16

Answer: 18

12. In this question, x^y stands for x raised to the power y. For example ,2^3=8 and 4^1.5=8. If a,b are real numbers such that a+b=3, a^2+b^2=7, the value of a^4+b^4 is?

a. 49
b. 45
c. 51
d. 47

Answer: 47

13. The air conditioned bus service from Siruseri industry park runs at regular intervals throughout the day. It is now 3:12 pm and it has arrived 1 minute ago but it was 2 minutes late. The next bus is due 3:18 pm. When is the next bus due?

a. 3:27 pm b. 3:29 pm c. 3:24 pmd. 3:25 pm

Answer: 3:27 pm

14. A road network covers some cities.city c can be reached only from city a or city b.the distance from a to c is 65 kms and that from B to C is 30 kms. The shortest distance from a to b is 58 kms. The shortest distance from city P to A is 420 kms and the shortest distance from city P to B is 345 kms. The shortest distance from city P to city C in kms is:

a. 153
b. 478
c. 403
d. 375 **Answer:** 375

15. A 70 foot pole stands vertically in a horizontal plane supported by three 490 foot wires, all attached to the top of the pole. Pulled and anchored to three equally spaced points in the plane. How many feet apart are any two of those anchor points?

Answer: 149.61

16. **Advanced:** The set A (0) is (1,2,3,4). For n > 0,A(n+1) contains all possible sums that can be

obtained by adding two different numbers from what is the number of integers in A(10).

Answer: 67

17. **Advanced** What is the number of positive integers less than or equal to 2017 that have at

least one pair of adjacent digits that are both even. For example 24,564 are two examples of

such numbers while 1276 does not satisfy the required property.

Answer: 738

18. In the following star, the numbers on each straight line are in arithmetic progression.

What is H+K+L?

a. -8
b. 11
c.5

Answer: -8

19. Considering a hash table with 100 slots. Collisions are resolved using chaining. Assuming simple uniform hashing, what is the probability that the rst 3 slots are unlled after the rst 3 insertions? (NOTE:100 ^ 3 means 100 raised to the power 3)

a.(97*96*95)/100^3 b.(97*96*95)/(6*100^3)

c.(97*97*97)/100^3 d. (99*98*97)/100^3

Answer:(97*97*97)/100^3

20. **Advanced** In this question x^y stands for x raised to the power y .for example 2^3=8 and 4^1.5=8

Find the number of positive integers n>2000 which can be expressed as n=2^m+2^n where m and n are integers (for example, 33=2^0+2^5)

Answer: 65

21. Fishing is a serious environmental issue.It has been determined by the scientists that if the net of a trawler has mesh size x cm by x (square mesh) then the percentage of sh entering the net that are caught in the net is (100-0.02x^2-0.05x. For example if the mesh size is zero 100% of the sh that enter the net will be caught. The trawler with net with a square mesh that was suspected of using an illegal size net dropped its net to the ocean oor near the damans and coast guard ofcials arrested the crew.the scientists later looked at the size of the sh caught and estimated that the net used by the trawler at least 97.93% of the sh entering the net would be caught. What is the maximum value of x for the net by the trawler?

a. 8.5 b.9 c. 11 d. None of the answers

Answer: 9

1) A^B means A raised to the power B. If f(x) = ax^4 – bx^2 + x + 5 and f(-3) = 2, then f(3) = ?
a. 3
b. 8
c. -2
d. 1

Answer: b
Explanation:
f(-3) = a(-3)4 – b(-3)2 + (-3) + 5 = 81a – 9b + 2 = 2 So 81a – 9b = 0,
f(3) = a(3)4 – b(3)2 + (3) + 5 = 81a – 9b + 8
Substituting the value of 81a – 9b = 0 in the above we get f(3) = 8

2) 1/4 of the tank contains fuel. When 11 liters of the fuel is poured into the tank, the indicator rests at the 1/2 mark. Find the capacity of the tank in liters.

a. 44
b. 36
c. 6
d. 8

Answer: a
Explanation:
Let the capacity of the tank be x liters.
Given, 1/4 of x + 11 = 1/2 of x
By solving we get the x value as 44 liters.

3) You have been given a physical balance and 7 weights of 47, 46, 43, 48, 49, 42, and 77 kgs. Keeping weights on one pan and object on the other, what is the maximum you can weigh less than 178 kgs.

a. 172
b. 174
c. 175
d. 177

Answer: b
Explanation:
The maximum weight that can be weighed less than 178 kgs is 174 (48 + 49 + 77 = 174 kgs).

4) How many 6-digit even numbers can be formed from the digits 1, 2, 3, 4, 5, 6 and 7 so that the digits should not repeat and the second last digit is even?

a. 320
b. 6480
c. 2160
d. 720

Answer: d
Explanation:
To form 6-digit even number, the last digit should be an even number so 3 ways (2, 4, or 6) to fill the last digit and second last digit also should be even for which it will take 2 ways to fill.
The last two digits are filled in 6 ways(2 x 3 = 6 ways). The rest of the 4 digits can be filled in 5P4 ways i.e. 120 ways.
Hence altogether to fill 6-digit even number = 120 * 6 = 720 ways.

5) Out of a group of swans, 7/2 times the square root of the total number are playing on the shore of the pond. The remaining 2 are inside the pond. Find the total number of swans.

a. 16
b. 25
c. 4
d. 9

Answer: a
Explanation:
Let the number of swans = x2
x2 = 7x/2 + 2 –> x2 = (7x + 4)/2
2x2 = 7x + 4, —> 2x2 – 7x – 4 = 0
The roots of x are 4, -1/2. Here -1/2 is not possible, so the x value will be 4.
The total number of swans is x2 i.e 16.

6) In a village, every weekend, three-eighth of the men and one-third of the women participate in a social activity. If the total number of participants is 54, and out of them 18 are men then the total number of men and women in the village is:

a. 180
b. 156
c. 204
d. 228

Answer: b
Explanation:
3/8th of men and 1/3rd of women participated and given that the total participants are 54.
Out of total participants 54, 18 were men and the rest will be women (54-18 = 36 women). From this, we can say that –> 3/8 * men = 18, therefore men = 48. And 1/3 of women = 36 –> women = 108.
The total number of men and women in the village is 156.

7) If M is 30% of Q, Q is 20% of P, and N is 50% of P, then M/N = ?

a. 6/5
b. 4/3
c. 3/25
d. 3/250

Answer: c
Explanation:
Q = 20% of P
M = 30% of Q —> 30% of (20% of P) —> 30/ 100 * 20/100 * P –> 6/100 * p
N = 50% of P –> 5/10 * P
M/ N = (6/100 * P) / (5/10 * P) = 6/50 = 3/25

8) There are 20 persons among whom two are sisters. Find the number of ways in which we can arrange them around a circle so that there is exactly one person between two sisters? Please note that the exact position on the circle does not matter (no seat numbers are marked on the circle), and only the relative positions of the people matter.

a. 2! * 19!
b. None of these
c. 2 * 18!
d. 18!

Answer: c
Explanation:
Fix the position of two sisters. Hence there are only 18 people left
So there are 18 ways in which a person can sit between the two sisters. Now if we swap the bothers we get another 18 ways.
So hence we have a total of = 2 * 18 combinations
Consider the group of three people(two brothers and the person between them) as a single entity.

we have another 17 people left so there are 18 entities to be arranged in total.
Arranging 18 entities around a circle can be done in (18-1)! = 17! ways
Total no of ways = 2 * 18 * 17! = 2 * 18!

9) Find the length of the longest pole that can be placed in an indoor stadium 24m long, 18m wide and 16m high.

a. 36m
b. 34m
c. 30m
d. 25m

Answer: b

Explanation:

Length of the longestt pole = diagonal of rectangular indoor stadium

$= \sqrt{(l^2+b^2+h^2)}$
$= \sqrt{(24^2+18^2+16^2)}$
$= \sqrt{(576+324+256)}$
$= \sqrt{1156}$
= 34 m

10) Of a set of 30 numbers, the average of first 10 numbers is equal to the average of last 20 numbers. Then the sum of the last 20 numbers is:

a. Sum of first ten numbers
b. 2 X sum of the first ten numbers
c. Cannot be determined with the given data
d. 2 x sum of last ten numbers

Answer: b
Explanation:
Average = (sum of n numbers)/(n)
(sum of first 10 numbers)/10 = (sum of last 20 numbers)/20
Hence, (sum of last 20 numbers) = 2*(sum of first 10 numbers)

11) Thomas takes 7 days to paint a house completely whereas Raj would require 9 days to paint the same house completely. How many days will it take to paint the house if both of them work together (give answers to the nearest integer)?

a. 4 days
b. 2 days
c. 5 days
d. 3 days

Answer: a
Explanation:
Work done by Thomas in a day = 1/7
Work done by Raj in a day = 1/9
Work done by both in a day = 1/7 +1/9 =16/63
Days required if they both work together = 63/16 = 3.9 = 4 days

12) The University of Vikramasila has enrolled nine Ph.D. candidates: Babu, Chitra, Dheeraj, Eesha, Farooq, Gowri, Hameed, Iqbal, Jacob.

– Farooq and Iqbal were enrolled on the same day as each other, and no one else was enrolled that day.
– Chitra and Gowri were enrolled on the same day as each other, and no one else was enrolled that day.
– On each of the other days of hiring, exactly one candidate was enrolled.
– Eesha was enrolled before Babu.
– Hameed was enrolled before Dheeraj.
– Dheeraj was enrolled after Iqbal but before Eesha.
– Gowri was enrolled after both Jacob and Babu.
– Babu was enrolled before Jacob.

Who were the last two candidates to be enrolled?

a. Eesha and Jacob
b. Babu and Chitra
c. Gowri and Chitra
d. Babu and Gowri

Answer: c
Explanation:
1. Easha < Babu
2. Hameed < Dheeraj
3. Iqbal < Dheeraj < Easha
4. Jacob/Babu < Gowri
5. Babu < Jacob
from 1 and 5, Easha was before Babu and Jacob so she cannot be in the last two. Option B ruled out
from 4 and 5, babu is before Jacob and Gowri so he cannot be in the last two. Options a, c ruled out.
So option d is correct.

13) In a certain city, 60 percent of the registered voters are Party A supporters and the rest are Party B supporters. In an assembly election, if 75% of the registered Party A supporters and 20% of the registered Party B supporters are expected to vote for Candidate A, what percent of the registered voters are expected to vote for Candidate A?

a. 20
b. 60
c. 75
d. 53

Answer: d
Explanation:
let there be x number of registered voters
60% are Party A supporters = 60% of x
40% are Party B supporters = 40% of x
Out of 60%, 75% voted for party A = 75%(60% of x) = 18x/40
Out of 40% ,20% voted for party B = 20%(40% of x) = 8x/100
=18x/40+8x/100=106x/200
Percentage of registered voters expected to vote for A = 106x/200*100 = 53% of x

14) When 100 is to be successively divided by 6, 3, 4, first divide 100 by 6. Then divide the quotient 16 by 3. Then divide the quotient 5 by 4.A number when successively divided by 5, 3, 2 gives the remainder of 0, 2 and 1 respectively in that order. What will be the remainders when the same number is divided successively by 2, 3 and 5 in that order?

a. 4, 1, 2 b. 1, 0, 4 c. 2, 1, 3 d. 4, 3, 2

Answer: b

15) Professor Nitwit obtains a hash number of a given positive integer > 3 as follows. He subtracts 2 from the number (to get the new number), and multiplies the new number by 2 to get a term. He repeats this with the new number (to get newer numbers and terms) until the number becomes 2 or 1. The hash is defined as the sum of all the terms generated in this process.

For example, with the number 5, he multiplies (5-2 =3) by 2 to get the first term 6. He multiplies (3-2=1) by 2 to get the second term 2. As the number has become 1, he stops. The hash is the sum of the two terms (6+2) or 8.

If professor Nitwit is given 3 numbers 4, 9 and 13, what is the sum of the hash numbers he obtains for the three numbers?

TCS Ninja Mock test questions and solutions – Aptitude (Advanced section)

1) How many pairs (m,n) of integers satisfy the equation 4^m = n^2 + 15? Please do not add white space around the answer _____

Answer: 4

2) Of all the nonempty subsets S of { 1, 2, 3, 4, 5, 6, 7}, how many do not contain the number |S|, where |S| denotes the number of elements in S? For example, {3, 4} is one such subset, since it does not contain the number 2. Please do not add white space around the answer _____

Answer: 63

3) A chord of a circle has length 3n, where n is a positive integer. The segment cut off by the chord has height n, as shown. What is the smallest value of n for which the radius of the circle ia also a positive integer? Please do not add white space around the answer _____

Answer: 8

4) A function f satisfies f(0) = 0, f(2n) = f(n), and f(2n + 1) = f(n) + 1 for all positive integers n. What is the value of f(2018)? Please do not add white space around the answer _____

5) If n is a positive integer, let s(n) denote the integer obtained by removing the last digit of n and placing it in front. For example, s(731) = 173. What is the smallest positive integer n ending in 6 satisfying s(n) = 4n?. Please do not add white space around the answer _____

TCS Ninja Aptitude questions (previously asked)

1. On a 26 question test, five points were deducted for each wrong answer and eight points were added for each correct answer. If all the questions were answered, how many were correct, if the score was zero?

a. 10
b. 12
c. 11
d. 13

Ans: a
Explanation:
Let x be the number of questions correct and therefore, (26- x) will be the wrong number of questions,

8x – 5(26-x) = 0 –> 8x – 130 + 5x =0
13x = 130, x =10
Hence 10 questions were correct.

2. Jake can dig a well in 16 days. Paul can dig the same well in 24 days. Jake, Paul and Hari together dig the well in 8 days. Hari alone can dig the well in

a. 96 days
b. 48 days
c. 32 days
d. 24 days

Ans: b
Explanation:
Let the total work to be done is 48 meters(LCM of 16, 24 and 8). Now Jake can dig (48/16) – 3 meters, Paul can dig (24/12) – 2 meters a day. Now all of them combined dug in 8 days so per day they dug 48/8 = 6 meters. So Of these 8 meters, Hari capacity is 1 meter. So he takes 48 /1 = 48 days to complete the digging job.

3. Mark told John "If you give me half your money I will have Rs.75". John said, "if you give me one-third of your money, I will have Rs.75/- How much money did John have?

a. 45
b. 60
c. 48
d. 37.5

Ans: b
Explanation:
Let the money with Mark and John are M and J respectively.
Now
M + J/2 = 75
M/3 + J = 75
Solving we get M = 45, and J = 60.

4. The value of a scooter depreciates in such a way that its value of the end of each year is 3/4 of its value of the beginning of the same year. If the initial value of the scooter is Rs.40,000, what is the value at the end of 3 years?

a. Rs.13435
b. Rs.23125
c. Rs.19000
d. Rs.16875

Ans: d
Explanation:
Every year it depreciates 3/4 th of the previous year. So (3/ 4 x (3/4 x (3/4 of 40,000))) = 3*3*3*625 = 16875. Hence the value after 3 years is Rs. 16875

5. A man has a job, which requires him to work 8 straight days and rest on a ninth day. If he started work on Monday, find the day of the week on which he gets his 12th rest day.

a. Thursday
b. Wednesday
c. Tuesday
d. Friday

Ans: b
Explanation:
He works for 8 days and takes rest on the 9th day. So On the 12th rest day, there are 9 x 12 = 108 days passed. Number of odd days = (108 – 1) / 7 = 107 / 7 = 2. So the 12th rest day is Wednesday.

6. George can do a piece of work in 10 days, Paul in 12 days and Hari in 15 days. They all start the work together, but George leaves after 2 days and Paul leaves 3 days before the work is completed. In how many days is the work completed?

a. 5
b. 6
c. 9
d. 7

Ans: d
Explanation:
Let the work be 60 units(LCM of 10, 12 and 15). If Paul worked for 3 days, and the remaining days of work are x days, total days to complete the work be x + 3 days. Now George's is 60/10 = 6, Paul is 5, Hari is 4.
(6 + 5 + 4) 2 + (5 + 4) (x – 3) + 5 x 3 = 60. On solving we get x = 4. So total days to complete the work is 7 days.

7. How many arrangements will start and end with a vowel for TOGETHER?

a. 1060
b. 1080
c. 2024
d. 1050

Ans: a
Explanation:
No. of ways to put a vowel on start and end = 3 (i.e O..E, E..O, E..E). The number of ways to arrange other 6 letters = 6!/2! = 360 (letter T is two times). Total number of arrangements = 3*360 = 1080.

8. In 4 years, Raj's father age is twice as raj, Two years ago, Raj's mother's age twice as raj. If Raj is 32 years old in eight years from now, what is the age of Raj's mother and father?

a. 32,34
b. 51,50
c. 32,36
d. 52,46

Ans: d

Explanation:

Raj present age = 32 – 8 = 24.
After 4 years Raj's age is 28. and Raj's father's age is 28 x 2 = 56, and his present age is 52.
Two years ago, Raj's age is 22. and his mother's age is 22 x 2 = 44. His mother's present age = 46

9. A call center agent has a list of 305 phone numbers of people in alphabetic order of names (but she does not have any of the names). She needs to quickly contact Deepak Sharma to convey a message to him. If each call takes 2 minutes to

complete, and every call is answered, what is the minimum amount of time in which she can guarantee to deliver the message to Mr. Sharma?

a. 18 minutes
b. 610 minutes
c. 206 minutes
d. 34 minutes

Ans: a

Explanation:
The call center calls the middle no. i.e. (305/2) = 152.5 say 152 and asks them their name to get an idea of whether to go to up or downside of 152 no directory and suppose person replies some name. The starting letter of the name will suggest the call center to decide to weather go up or down the name list.
So the process goes like >305->152–>76–>38–>19–>9–>4–>2–>1, the minimum time = 9*2 = **18 mins**.

10. In how many ways a team of 11 must be selected from 5 men and 11 women such that the team must comprise of not more than 3 men?

a. 1565
b. 2456
c. 1243
d. 2256

Ans: d
Explanation:
The team may consist of 0 men + 11 women, 1 men + 10 women, 2 men + 9 women, or 3 men + 8 women.So Number of ways are = 11C11+5C1 ×× 11C10+5C2 ×× 11C9+5C3 ××11C8 = 2256 ways.
11. Given that 0 < a < b < c < d, which of the following the largest?

a. (c+d) / (a+b)
b. (b+d) / (a+c)
c. (b+c) / (a+d)
d. (a+d) / (b+c)

Ans: a
Explanation:
Let's assume the value of a , b, c and d as 1, 2, 3, 4 (a=1, b=2, c=3, and d=4), by solving we get the answer as (c+d) / (a+b).

12. Eesha bought 18 sharpeners for Rs.100. She paid 1 rupee more for each white sharpener than for each brown sharpener. What is the price of a white sharpener and how many white sharpeners did she buy?
a. Rs. 5, 10
b. Rs. 6, 8
c. Rs. 6, 10
d. Rs. 5, 8
Ans: c
Explanation:
Let's solve from the options, if she bought 10 white sharpeners at Rs.6 per piece, She has spent Rs.60 already. And with the remaining Rs.40, she bought 8 brown sharpeners at 40/8 = Rs.5 which is Rs.1 less than the White sharpener. Hence Rs. 6 and 10 white sharpeners.

13. The sum of the digits of a three digit number is 17, and the sum of the squares of its digits is 109. If we subtract 495 from the number, we shall get a number consisting of the same digits written in the reverse order. Find the number.

a. 683
b. 863
c. 944
d. 773

Ans: b
Explanation:
Let's solve from the options, Sum of the squares should be equal to 109. Only Options a and b satisfying. When we subtract 495, only 863 becomes 368.

14. Raj goes to the market to buy oranges. If he can bargain and reduce the price per orange by Rs.2, he can buy 30 oranges instead of 20 oranges with the money he has. How much money does he have?

a. Rs. 50
b. Rs. 150
c. Rs. 120
d. Rs. 100

Ans: d
Explanation:
Let the money with Raj is M. So (M/20) – (M/30) = 2. Check options. Option c satisfies.

15. A city in the US has a basketball league with three basketball teams, the Aziecs, the Braves and the Celtics. A sportswriter notices that the tallest player of the Aziecs is shorter than the shortest player of the Braves. The shortest of the Celtics is shorter than the shortest of the Aziecs, while the tallest of the Braves is shorter than the tallest of the Celtics. The tallest of the Braves is taller than the tallest of the Aziecs.
Which of the following can be judged with certainty?

X) Paul, a Brave is taller than David, an Aziec
Y) David, a Celtic, is shorter than Edward, an Aziec

a. Both X and Y
b. X only
c. Y only
d. Neither X nor Y

Ans: B
Explanation:
By assuming the values, let's solve it. Be the shortest of Braves is 4 feet, then tallest of Aziecs is less than 4. So let it be 3 feet. A -> 2 – 3, B -> 4 – 6, C -> 1 – 7. From the above, we can safely conclude X is correct. but Y cannot be determined.

16. A BB CCC DDDD EEEEE….. What is the 120th letter?

a. L b. O c. K d. N

Ans: b
Explanation:
Number of letters in each term are in AP. 1, 2, 3, … So, n(n+1)/2 <= 120. For n = 15, we get LHS = 120. So 15th letter in the alphabet is O. So 15th term contains 15 Os.

17. There are 120 male and 100 female in a society. Out of 25% male and 20% female are rural. 20% of male and 25% of female rural people passed in the exam. What % of rural students have passed the exam?

a. 20%
b. 18%
c. 22%
d. 15%

Ans: c
Explanation:
From the given information, Rural male = 25%(120) = 30, Rural female = 20%(100) = 20. Passed students from rural: male = 20%(30) = 6, female = 25%(20) = 5. Required percentage = 11/50 * 100 = 22%.

18. On the fabled Island of Knights and Knaves, we meet three people, A, B, and C, one of whom is a knight, one a knave, and one a spy. The knight always tells the truth, the knave always lies, and the spy can either lie or tell the truth. A says: “C is a knave.”B says: “A is a knight.”C says: “I am the spy.”Who is the knight, who the knave, and who the spy?

a. A – Knight, B – Knave, C – Spy
b. A – Spy, B – Knight, C – Knave
c. A – Knave, B – Spy, C – Knight
d. A – Knight, B – Spy, C – Knave

Ans: d
Explanation:
Let us say A is Knight and speaks the truth. So C is Knave and B is a spy. So Cs statement is false and Bs statement is true. This case is possible. If B is Knight, this is not possible as A also becomes Knight as B speaks the truth.
Suppose C is Knight, this is clearly contradicted by C’s statement itself.

19. The average temperature of Tuesday, Wednesday and Thursday is 37 C. The average temperature of Wednesday, Thursday and Friday is 38 C. If the temperature on Friday is 39 C. Find the temperature on Tuesday.

a. 37.33
b. 38.33
c. 36
d. None of the above

Ans: c
Explanation:
The average temperature of Tuesday, Wednesday and Thursday is (Tue + Wed + Thu) / 3 = 37
Tue + Wed + Thu = 111 —— (A)
The average temperature of Wednesday, Thursday and Friday is (Wed + Thu + Fri) / 3 = 38
Wed + Thu + Fri = 114 ——- (B)
Given Friday’s temperature as 39, then (B) – (A) –> Fri – Tue = 3. So 39 – Tue = 3 –> Tue = 36.
Hence, the temperature on Tuesday is 36

20. In a certain city, 60% of the registered voters are Congress supporters and the rest are BJP supporters. In an assembly election, if 75% of the registered congress supporters and 20% of the registered BJP supporters are expected to vote for candidate A, what percent of the registered voters are expected to vote for candidate A?

a. 20
b. 23

c. 50
d. 53

Ans: d
Explanation:
Let the people in the city be 100, Congress supporters = 60% of 100 = 60 and 40% are BJP=40% of 100 = 40.
Out of 60, 75% voted for congress=75%(60)=45
Out of 40%,20% voted for congress=20%(40)=8
In total = 45 + 8 = 53, Hence the total percentage of registered candidates – 53%

TCS English Questions with Answers

TCS English questions – 1

Chatbots are now part of 1) _____ cultural narrative and are 2) _____ even more sophisticated. It is hard to find 3) _____ who has not had an interaction with a chatbot or virtual assistant. As chatbots and virtual assistants 4) _____ more sophisticated, they 5) _____ to respond with increasing empathy and personalization, 6) _____ tracking the customer 7) _____. Whether voice or text activated, bots 8) _____ able to help users find 9) _____ and answers 24 X 7, on any device or channel faster than ever 10) _____. In fact, more and more people are rating messaging as a top choice for customer service.

1) the
2) becoming
3) someone
4) get
5) will be able
6) seamlessly
7) journey
8) will be
9) products
10) before

TCS English questions – 2

Technology has 1) _____ our lives and influenced nearly 2) _____ industry, including fitness. From apps to wearables, technology is constantly 3) _____ the way 4) _____ fitness industry functions. Mobile technology, fitness wearables and data, and smart equipment 5) _____ shaping the way health clubs 6) _____ equipment manufacturers operate today. Engaging members via mobile with digital fitness challenges, reward programs, push notifications and wearable integration not only 7) _____ fitness operators to 8) _____ existing relationships with clients 9) _____ also build 10) _____ them.

1) revolutionized
2) every
3) changing
4) the
5) are
6) and
7) allows
8) foster
9) but
10) on

TCS English question – 3

Rainforests 1) ____ a wide variety of ecosystems services, from regulating rainfall to purifying groundwater and keeping fertile soil from 2) _____; deforestation in one area can seriously damage food production and 3) _____ to clean water in an entire region. The value of global ecosystem services 4) _____ estimated at 33 trillion USD each year (almost half of global GDP), 5)_____ these services have been taken for granted without a mechanism to make the market reflect their value. Rainforests are also a home and 6) _____ of income for a huge number of people in Africa, Asia and South America. 7) _____ this, economic pressures frequently drive both logical communities 8) _____ national governments in the developing world to 9) _____ these forests in ways that are unsustainable, clear-cutting vast areas 10) _____ fuel, timber, mining or agricultural land.

1) offer
2) decoding
3) access
4) has been
5) but
6) source
7) despite
8) and
9) exploit
10) for

A greenhouse is a glass-covered structure (1) _____ (uses, using, used) to grow plants. It has transparent glass that allows sunlight to pass (2) _____ (out, through , inside), but does not allow the heat inside to escape. The same (3) _____ (effect, affect) occurs on the earth. The (4) _____ (sun's, suns, sun) radiation (5) _____ (passes, passing) through the atmosphere to heat the earth's surface. When heated, the earth's surface produces infrared radiation, which has a longer wavelength than that of sunlight. This infrared radiation rises into the atmosphere where gases, such as carbon dioxide, (6) _____ (prevents, prevent, prevented) the infrared radiation from escaping into space. The concentrations of these gases, (7) _____ (that, those, which) are called greenhouse gases, control how much-infrared radiation escapes.

(1) used(2) through(3) effect(4) sun's(5) passes(6) prevent(7) which

1) Read each sentence to find out whether there is any grammatical error in it. The error, if any will be in one part of the sentence. The letter of that part is the answer. If there is no error, the answer is 'D'. (Ignore the errors of punctuation, if any).

a. I could not put up in a hotel
b. because the boarding and lodging charges
c. were exorbitant.
d. No error.
Answer: a
'I could not put up at a hotel'

2) a. A lot of travel delay is caused
b. due to the inefficiency and lack of good management
c. on behalf of the railways.
d. No error.
Answer: c
on the part of the railways

3) a. Having received your letter
b. this morning, we are writing
c. to thank you for the same.
d. No error.
Answer: D

4)a. Do the roses in your garden smell
b. more sweetly
c. than those in ours?
d. No error.
Answer: B
sweeter

5)a. The students were
b. awaiting for
c. the arrival of the chief guest.
d. No error.
Answer: b

6) Identify the meaning of the idiom: To catch a tartar

a. To trap wanted criminal with great difficulty
b. To catch a dangerous person
c. To meet with disaster
d. To deal with a person who is more than one's match
Answer: b

7) To have an axe to grind a. A private end to serve
b. To fail to arouse interest
c. To have no result
d. To work for both sides
Answer: a

8) Complete the below sentences: I felt somewhat more relaxed _____ a. but tense as compared to earlier
b. and tense as compared to earlier
c. as there was already no tension at all
d. and tension-free as compared to earlier
Answer: d

9) His appearance is unsmiling but _____ a. his heart is full of compassion for others
b. he looks very serious on most occasions
c. people are afraid of him
d. he is uncompromising on matters of task performance
Answer: a

10) DIVA: OPERA a. producer:theatre
b. director:drama
c. conductor:bus
d. thespian:play
Answer: d

11) GRAIN:SALT a. shard:pottery
b. shred:wood
c. blades:grass'
d. chip:glass
Answer: d

TCS Programming Questions – Question Types

TCS has officially released a list of indicative question types asked in TCS Programming Mcqs section. The following are the expected question types for this section.

- Given a code in C language/pseudo-code, Identify the functionality of the code.
- Given a code in C language/pseudo-code, identify the bug (syntactic/ semantic) in the code.
- Conceptual Questions in programming
- Elementary algorithms based questions
- Elementary data structures based questions
- Questions based on basics of C language
- Basic Concepts behind compiling, linking, OS

TCS Programming Questions with Answers

1) Eesha was in a wonderland where she saw a treasure trove of seven items of various items (in lakhs) and weights (in kgs) as per the table given below.

Value

Weight

12 4 10 6 8 5 11 7 14 3 5 10 5 12

She wanted to bring back the maximum value of items but she was not able to carry more than 10 kgs. Using dynamic programming, what is the maximum value of the items that she could carry back with her.

Answer: 26

2) In C language, if a function return type is not explicitly defined then it defaults to what data type?

Answer: Int

3) Which of the following syntax is correct for command -line arguments?

a) int main (char *argv[], int argc)
b) none of the three options
c) int main () { int argv, char *argc[]; }
d) int main(int var, char *varg[])

Answer: int main (int var,char *varg[])

4) The full set of operations allowed on a stack are

a) Push, pop
b) Push, pop, remove
c) Push, pop, add, remove
d) Push,pop,add,remove,substitute
Answer: push, pop

5) Realloc () function is used to:

a) Get back the memory that was released earlier using dree() function
b) Reallocate a file pointer when switching between files
c) Change the size of an array
d) Change the size of the dynamically allocated memory

Answer: change the size of dynamically allocated memory

6) Which of the below is NOT a data type in C language:

a) Signed int
b) Big int
c) Short int
d) Long int

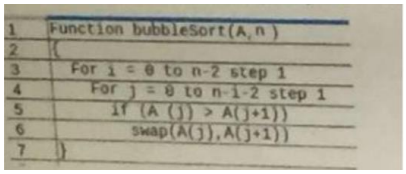
Answer: Big int

7) Eesha wants to implement an image viewer application to view images in a given folder. The application will be able to display an image and will also know what its next and previous images are at any given point of time so that the user can so that the user can view next/previous image by pressing right/left keys on the keyboard. Which data structure is appropriate for Esha to use?

a) Tree
b) Queue
c) Linked list
d) Stack

Answer: Linked list

8) The pseudo code below sorts an array using bubble sort. Here A is the array and the" n" is the number of elements in it. Function swap exchanges the value of 2 given value.



This function is called with A and 7 as parameter where the array a initially contains the element 64, 34, 25,12, 22, 11, 9

a) 34 25 12 22 11 9 64
b) 25 12 22 11 9 34 64
c) 11 9 12 22 25 34 64
d) 12 11 9 22 25 34 64

Answer: 25 12 22 11 9 34 64

9) #define is used to

a) Define a variable
b) Define a macro
c) Define a function
d) Define a constant

Answer: Define a macro

10) What type of data structures are queues?

a) First in last out
b) First in first out
c) Last in first out
d) Last in last out

Answer: First in first out

11) Which of the following is NOT a valid storage class in C language?

a) Extern
b) Dynamic
c) Register
d) Auto

Answer: Dynamic

12) Eesha is developing a word processing software in which she wants to provide undo feature. The software will maintain all the sequential changes and at any point of time pressing control z will undo the latest change, what data structure should Eesha use for this?

a) Stack
b) Queue
c) Linked list
d) Array

Answer: Stack

13) #include
Main(int argc,char**argv)
{
printf("%s\n",argv[–argc]);
Return 1;
}

The above program was run with the following command line parameters
Asha usha nisha easha
What was the output? a) Nisha
b) Unable to run due to compilation error
c) No output,run time error
d) Eesha

Answer: Eesha

1) #include
int main(int argc, char ** argv)
{
char **items;
int j = 3, i;
items = argv;
for(i = 1; (i%4); i++)
{
int **p = &items[j];
printf("%c", **p);
j–;
}
return 0;
}

The above code is run with three command line parameters mentioned below:

Paper Ink Pen

What will be the output of the above program?

1. PIP
2. Pen
3. Pap
4. Ink

Answer: a

2) Improper formation of which of the following data-structures can cause un-intentional looping of a program that uses it.

2. Linked list
3. Array
4. Queue
5. Stack

Answer: Linked list

3) What is the data type that occupies the least storage in "C" language?

Please give the answer in the blank line: _____

Answer: char

4) Which of the following is true?

a. Array is a dynamic data structure whose size can be changed while stacks are static data structures whose sizes are fixed.
b. Array elements can be accessed and modified(elements can be added or removed) only at the ends of the array while any elements of the stack can be accessed or modified randomly through their indices.
c. An array can have elements of different data types.
d. Elements of a linked-list can be accessed only sequentially.

Answer: d

5) Which of the following statements is FALSE?
a. The time complexity of binary search is O(log n).
b. A linear search requires a sorted list.
c. A binary search can operate only on a sorted list.
d. The time complexity of linear search is O(n).

Answer: b

6) Eesha wrote a function fact( ) in "C" language to calculate factorial of a given number and saved the file as fact.c. She forgot to code the main function to call this fact function. Will she be able to compile this fact.c without the main() function?
a. Yes, she can compile provided the compiler option -nostrict-checking is enabled.
b. No, she can not compile as main function is required to compile any C program file.
c. Yes, she can compile as main( ) is not required at compile time.
d. Yes, she can compile and run as the system will supply default values to fact function.

Answer: b

7) The difference between variable declaration and variable definition is:
a. Declaration and definition are the same. There is no difference.
b. A declaration is used for variables and definitions is used for functions.
c. Declaration associates type to the variable whereas definition associates scope to the variable.
d. Declaration associates type to the variable whereas definition gives the value to the variable.

Answer: d

TCS Ninja Mock test Questions – Programming Concepts (Advanced Section)

1) The inorder and preorder traversal of a binary tree are **d b e a f c g** and **a b d e c f g**, respectively. The post-order traversal of the binary tree is:
a. d e b f g c a
b. d e f g b c a
c. e d b f g c a
d. e d b g f c a

Answer: a

2) Eesha wrote a recursive function that takes the first node in a linked list as an argument, reverses the list, returning the first Node in the result. The pseudo code for this function is given below. However, she did not get the correct result. In which line number did she make a mistake?

Please give the answer in the blank line: _____

```
public Node  reverse(Node first)
{
if (first == null)   return null;
if (first.next == null)   return first;
Node second = first.next;
Node rest  = reverse (second);
second.next = first;
first.next = null;
return rest.next;
}
```

Answer: return rest

3) The longest common subsequence (LCS) problem is the problem of finding the longest subsequence common to a set of sequences (often just two sequences). A subsequence is a sequence that can be derived from another sequence by deleting some or no elements without changing the order of the remaining elements. One form of implementation of LCS function is given below. The function takes as input sequences X[1…m] and Y[1…n], computes the length of the Longest common subsequence between X[1..i] and Y[1..j] for all $1 \leq i \leq m$ and $1 \leq j \leq n$, and stores it in C[i,j]. C[m,n] will contain the length of the LCS of X and Y.

```
function LCSLength(X[1..m], Y[1..n])
C = array(0..m, 0..n)
for i:= 0..m
C[i,0] =0
for j := 0..n
C[0,j] = 0d
for i := 1..m
for j := 1..n
if X[i]  =  Y[j]
C[i,j] := C[i-1, j-1] + 1
else
C[i,j] := max(C[i, j-1], C[i-1, j])
return C[m, n]
```

Eesha used the above algorithm to calculate the LCS length between “kitten” and “string”. What was the result she got? Please give the answer in the blank line. _____

Answer: 2

TCS Ninja Programming MCQ’s (previously asked)

1) How many times the below loop will be executed?

```
#include
int main()
{
int x, y;
for(x=5;x>=1;x–)
{
for(y=1;y<=x;y++)
printf(“%d\n”,y);
} }
```

A. 15
B. 11
C. 10
D. 13

Solution: Option A

2) Where are the local variables stored? A. Disk
B. Stack
C. Heap
D. Code

Solution: Option B

3) Which datatype has more precision?

A. double
B. float
C. int
D. long int

4) Find the output of the following code?

```
int main
{
float f = 0.1;
if (f = 0.1)
printf (“yes”);
else print (“no”);
}
```

5) What will happen if in a C program you assign a value to an array element whose subscript exceeds the size of array?

A. The element will be set to 0.
B. The compiler would report an error.
C. The program may crash if some important data gets overwritten.
D. The array size would appropriately grow.

Solution: Option C
Explanation: If the index of the array size is exceeded, the program will crash. Hence “option c” is the correct answer. But the modern compilers will take care of this kind of errors.

6) What does the following declaration mean?

int (*ptr)[10];

A.ptr is array of pointers to 10 integers
B.ptr is a pointer to an array of 10 integers
C.ptr is an array of 10 integers
D.ptr is an pointer to array

Solution: Option B

7) In C, if you pass an array as an argument to a function, what actually gets passed?

A.Value of elements in array
B.First element of the array
C.Base address of the array
D.Address of the last element of array

Solution: Option C
Explanation: The statement ‘C’ is correct. When we pass an array as a function argument, the base address of the array will be passed.

8) What will be the output of the program ?

```
#include
int main()
{
```

```
    int a[5] = {5, 1, 15, 20, 25};
    int i, j, m;
    i = ++a[1];
    j = a[1]++;
    m = a[i++];
    printf("%d, %d, %d", i, j, m);
    return 0;
}
```

A. 2, 1, 15
B. 1, 2, 5
C. 3, 2, 15
D. 2, 3, 20

Solution: Option C
Explanation:
Step 1: int a[5] = {5, 1, 15, 20, 25}; The variable arr is declared as an integer array with a size of 5 and it is initiapzed to a[0] = 5, a[1] = 1, a[2] = 15, a[3] = 20, a[4] = 25 .
Step 2: int i, j, m; The variable i,j,m are declared as an integer type.
Step 3: i = ++a[1]; becomes i = ++1; Hence i = 2 and a[1] = 2
Step 4: j = a[1]++; becomes j = 2++; Hence j = 2 and a[1] = 3.
Step 5: m = a[i++]; becomes m = a[2]; Hence m = 15 and i is incremented by 1(i++ means 2++ so i=3)
Step 6: printf("%d, %d, %d", i, j, m); It prints the value of the variables i, j, m
Hence the output of the program is 3, 2, 15

9) Is there any difference int the following declarations?

```
int fun(int arr[]);
```

```
int fun(int arr[2]);
```

A.Yes
B.No

Solution: Option B
Explanation: No, both the statements are same. It is the prototype for the function fun() that accepts one integer array as a parameter and returns an integer value.

10) Are the expressions arr and &arr same for an array of 10 integers?

A.Yes
B.No

Solution: Option B
Explanation: Both mean two different things. arr gives the address of the first int, whereas the &arr gives the address of array of ints.

11) Which of the fplowing statements should be used to obtain a remainder after dividing 3.14 by 2.1?

A.rem = 3.14 % 2.1;
B.rem = modf(3.14, 2.1);
C.rem = fmod(3.14, 2.1);
D.Remainder cannot be obtain in floating point division.

Solution: Option C
Explanation:
fmod(x,y) – Calculates x modulo y, the remainder of x/y.
This function is the same as the modulus operator. But fmod() performs floating point divisions.

12) What are the types of pnkages?

A.Internal and External
B.External, Internal and None
C.External and None
D.Internal

Solution: Option B

13) Which of the following special symbols are allowed in a variable name?

A.* (asterisk)
B.| (pipepne)
C.-(hyphen)
D._(underscore)

Solution: Option D
Explanation: Variable names in C are made up of letters (upper and lower case) and digits. The underscore character ("_") is also permitted. Names must not begin with a digit.

14) Is there any difference between fplowing declarations?

1 : extern int fun();

2 : int fun();

A. Both are identical
B. No difference, except extern int fun(); is probably in another file
C. int fun(); is overrided with extern int fun();
D. None of these

Answer: Option B
Explanation: extern int fun(); declaration in C is to indicate the existence of a global function and it is defined externally to the current module or in another file.
int fun(); declaration in C is to indicate the existence of a function inside the current module or in the same file.

TCS Coding Questions with Solutions

TCS Coding question – 1

Consider the following series: 1,1,2,3,4,9,8,27,16,81,32,243,64,729,128,2187…

This series is a mixture of 2 series – all the odd terms in this series form a geometric series and all the even terms form yet another geometric series. Write a program to find the Nth term in the series.

The value N is a positive integer that should be read from STDIN. The Nth term that is calculated by the program should be written to STDOUT. Other than the value of the nth term, no other character/string or message should be written to STDOUT. For example, if N=16, the 16th term in the series is 2187, so only value 2187 should be printed to STDOUT.

You can assume that N will not exceed 30.

Answer:

```
#include"stdio.h"
#include"math.h"
int main()
{
    //code
    int n;
    scanf("%d", &n);
    if(n % 2 == 1)
    {
        int a = 1;
        int r = 2;
        int term_in_series = (n+1)/2;
        int res = pow(2, term_in_series – 1);
        printf("%d ", res);
    }
    else
    {
        int a = 1;
        int r = 3;
        int term_in_series = n/2;
        int res = pow(3, term_in_series – 1);
        printf("%d ", res);


    }
    return 0;
}
```

Input: 16

Output: 2187

TCS Coding Questions – 2

Consider the following series: 0,0,2,1,4,2,6,3,8,4,10,5,12,6,14,7,16,8

This series is a mixture of 2 series all the odd terms in this series form even numbers in ascending order and every even term is derived from the previous term using the formula (x/2).

Write a program to find the n^{th} term in this series.

The value n is a positive integer that should be read from STDIN the nth term that is calculated by the program should be written to STDOUT. Other than the value of the n^{th} term no other characters /strings or message should be written to STDOUT.

For example, if n=10, the 10 th term in the series is to be derived from the 9th term in the series. The 9th term is 8 so the 10th term is (8/2)=4. Only the value 4 should be printed to STDOUT.

You can assume that the 'n' will not exceed 20,000.

Answer:

```
#include "stdio.h"
#include "math.h"
int main()
{
    //code
    int n;
    scanf("%d", &n);
    if(n % 2 == 1)
    {
        int a = 1;
        int r = 2;
        int term_in_series = (n+1)/2;
        int res = 2 * (term_in_series – 1);
        printf("%d ", res);
    }
    else
    {
        int a = 1;
        int r = 3;
        int term_in_series = n/2;
        int res = term_in_series – 1;
        printf("%d ", res);
    }
    return 0;
}
```

Input: 10

Output: 4

TCS Coding Questions – 3

Consider the given input and output:

Input: Get 3 strings in 3 lines as input

Hello
Hi
Good Morning

Output:

In the 1st string, replace the vowels with '$', in the 2nd string replace the consonants with '#' and for the 3rd string replace the upper case into lower and lower case into upper. And print these converted string in a single line as output.

H ll #i gOOD mORNING

Answer:

```
#include "stdio.h"
#include "string.h"
int main()
{

    char str1[20], str2[20], str3[20], ans3[20];
    int i;
    scanf("%s", str1);
    scanf("%s", str2);
    scanf("%s", str3);
    for(i=0; i<=strlen(str1); i++)
    {
        if(check_vowel(str1[i]) == 1)
            str1[i] = '$';
    }
    printf("%s", str1);
    for(i=0; str2[i]!='\0'; i++)
    {


        if((str2[i] =='a'||str2[i]=='e'||str2[i]=='i'||str2[i]=='o'||str2[i]=='u' || str2[i] == 'A' || str2[i] == 'E' || str2[i] == 'I' ||
str2[i] ==              'O' || str2[i] == 'U') == 0)


        {
                str2[i] = '#';


        }


    }
    printf("%s", str2);
    for(i=0;i<=strlen(str3);i++)
    {
        if(str3[i]>='a' && str3[i]<='z')
        {
            ans3[i]=str3[i]-32;
        }
        if(str3[i]>='A' && str3[i]<='Z')
        {
            ans3[i]=str3[i]+32;
        }
    }
    ans3[--i] = '\0';
    printf("%s", ans3);
```

```
    return 0;

}
```

Input:

hey

hey

gOOd

Output:

h$y#e#GooD

Consider the below series:

1, 2, 1, 3, 2, 5, 3, 7, 5, 11, 8, 13, 13, 17, …

This series is a mixture of 2 series – all the odd terms in this series form a Fibonacci series and all the even terms are the prime numbers in ascending order.

Write a program to find the Nth term in this series.

The value N is a Positive integer that should be read from STDIN. The Nth term that is calculated by the program should be written to STDOUT. Other than the value of Nth term, no other characters/strings or message should be written to STDOUT.

For example, when N = 14, the 14th term in the series is 17. So only the value 17 should be printed to STDOUT.

Program:

```
#include
#define MAX 1000
void fibonacci(int n)
{
int i, t1 = 0, t2 = 1, nextTerm;
for (i = 1; i<=n; i++)
{
nextTerm = t1 + t2;
t1 = t2;
t2 = nextTerm;
}
printf("%d", t1);
}


void prime(int n)
{
int i, j, flag, count =0;
for (i=2; i<=MAX; i++)
{
flag = 0;
for (j=2; j<i; j++)
{
```

```
if(i%j == 0)
{
flag = 1;
break;
}
}
if (flag == 0)
count++;
if(count == n)
{
printf("%d", i);
break;
}
}
}
int main( )
{
int n;
scanf("%d", &n);
if(n%2 == 1)
fibonacci (n/2 + 1);
else
prime(n/2);
return 0;
}
```

TCS Ninja Coding question 1:

Factorial program in c using command line arguments.

Explanation: Factorial of a non-negative integer n, denoted by n!, is the product of all positive integers less than or equal to n. For example, The value of 5! is 5*4*3*2*1 = 120

Solution:

```
#include
int main(int a, char *b[])  //command line arguments
{
int x,y,f=1;
x=atoi(b[1]);   //atoi function is to convert a character to integer
for(i=1;i<=x;i++)
{
f=f*i;
}
printf("%d",f);
return 0;
}
```

TCS Ninja Coding question 2:

Write a c program, to find the area of a circle when the diameter is given, using command line arguments. The input diameter is an integer and the output area should be a floating point variable with 2 point precision.

Solution:

```
#include
#define PI 3.14
int main(int a, char *b[])   //command line arguments
{
```

```
int d; float area =0;
d= atoi(argv[1]);
area =(float) PI*(d/2)*(d/2);
printf("%0.2f", area);    //%0.2f is to print the answer with 2 values after decimal point.
return 0;
}
```

TCS Ninja Coding question 3:

Write a c program, to check whether the given year is a leap year or not using command line arguments. A leap year is a calendar year containing one additional day (Feb 29th) added to keep the calendar year synchronized with the astronomical year.

Solution:

```
#include
int main(int a, char*b[])
{
int year; year=atoi(b[1]);
if(year%100==0)
{
if(year%400==0)
{
printf("LEAP YEAR");
}
else{
printf("NOT LEAP YEAR"); } }
else if(year%4==0)
{
printf("LEAP YEAR");
}
else{
printf("NOT LEAP YEAR");
}
return 0; }
```

TCS Ninja Coding question 4:

Write a c program, to find the GCD of the given 2 numbers, using command line arguments. The input is 2 integer and the output GCD also should be an integer value.

Solution:

```
#include
int main(int x, char *y[])
{
inta,b,small,i;
a=atoi(y[1]);
b=atoi(y[2]);
small=a>b?b:a;
for(i=small;i>=1;i–)
{
if((a%i==0)&&(b%i==0))
{
printf("%d",i);
break;
} }
return 0;
}
```

TCS Ninja Coding question 5:

C Program to check whether a given number is a prime number or not. The given number N, a positive integer, will be passed to the program using the first command line parameter. If it is a prime number the output should be the square root of the number up to 2 decimal point precision, If it is not a prime number then print 0.00 to stdout.

Solution:

```
#include
#include
#include int main(int a, char *b[])
{
int number,i,flag = 1;
number = atoi(b[1]);
for(i=2; i<number; i++)
{
if(number%i == 0)
{
flag = 0;
break;
}
}
if(flag == 1)
printf("%.2f",sqrt(number));
else
printf("0.00");
return 0;
}
```

TCS Ninja Coding question 6:

C Program to check whether a given number is a strong number or not. The given number N, a positive integer, will be passed to the program using the first command line parameter. If it is a strong number, the output should be "YES", If it is not a prime number then output should be "NO" to stdout. Other than YES or NO, no other extra information should be printed to stdout.

Solution:

```
#include
#include
int main(int a, char *b[])
{
int number, i, temp, sum = 0, factorial = 1;
number = atoi(b[1]);
temp = number;
while(number != 0)
{
int rem = number%10;
for(i=2; i<=rem; i++)
{
factorial = factorial * i;
}
sum = sum + factorial;
number = number/10;
factorial = 1;
}
if(temp == sum)
printf("YES");
else
printf("NO");
```

```
return 0;
}
```

TCS Ninja Coding question 7:

Write a C program which will convert a given decimal integer number N to its binary equivalent. The given number N, a positive integer, will be passed to the program using the first command line parameter. Print the equivalent binary number to stdout. Other than the binary number, no other extra information should be printed to stdout Example: Given input “19”, here N=19, expected output 10011

Solution:

```
#include
#include
int main(int a, char *argv[])
{
int number, count, i;
int b[32];
number = atoi(argv[1]);
count = 0;
while(number != 0)
{
b[count]=number%2;
number = number/2;
count++;
}
for(i=(count-1); i>=0; i–)
printf(“%d”, b[i]);
return 0;
}
```

TCS Ninja Coding question 8:

Write a c program that will find the sum of all prime numbers in a given range. The range will be specified as command line parameters. The first command line parameter, N1 which is a positive integer, will contain the lower bound of the range. The second command line parameter N2, which is also a positive integer will contain the upper bound of the range. The program should consider all the prime numbers within the range, excluding the upper bound and lower bound. Print the output in integer format to stdout. Other than the integer number, no other extra information should be printed to stdout. Example Given inputs “7” and “24” here N1= 7 and N2=24, expected output as 83.

Solution:

```
#include
int main(int argc, char *argv[])
{
int N1, N2, j, i, count, sum = 0;
N1 =atoi(argv[1]);
N2 =atoi(argv[2]);
for(i=N1+1; i<N2; ++i)
{
count = 0;
for(j=2; j<=(i/2); j++)
{
if(i%j==0)
{
count++;
break;
}
}
if(count==0)
```

```
sum = sum + i;
}
printf(“%d”,sum);
return 0;
}
```

TCS Ninja Coding question 9:

Write a C program to check whether the given number is a perfect square or not using command line arguments.

Solution:

```
#include
#include
int main(int a, char *b[])
{
int n, i;
n= atoi(b[1]);
for(i = 0; i <= n; i++)
{
if(n == i * i)
{
printf(“YES”);
return 0;
}
}
printf(“NO”);
return 0;
}
```

TCS Ninja Coding question 10:

Write a C program to check whether the given number is Palindrome or not using command line arguments.

Solution:

```
#include
#include
int main(int a,int *b[])
{
int  number, rem, sum = 0;
number = atoi(b[1]);
int copy = number;
while(number != 0)
{
rem =number%10;
sum = sum * 10 + rem;
number = number/10;
}
if(copy == sum)
printf(“Palindrome”);
else
printf(“Not Palindrome”);
return 0;
}
```

TCS Ninja Coding question 11:

Write a C program to convert the vowels to an uppercase in a given string using command line arguments.

Example: if the input is tata, then the expected output is tAtA.

Solution:

```
#include
int main(int argc, char *argv[])
{
char *str = argv[1];
int i;
for(i =0; str[i] !='\0′; i++)
{
if(str[i] == 'a' || str[i] == 'e' || str[i] == 'i' || str[i] == 'o' || str[i] == 'u')
{
str[i] = str[i] – 32;
}
}
printf("%s", str);
return 0;
}
```

TCS Ninja Coding question 12:

Write a C program to find the hypotenuse of a triangle using command line arguments.

Solution:

```
#include int main(int a, char*b[])
{
float hyp;
int opp=atoi(b[1]);
int adj=atoi(b[2]);
hyp=sqrt((opp*opp)+(adj*adj));
printf("%0.2f",hyp);
return 0;
}
```

TCS Ninja Coding question 13:

Write a C program to find whether the given number is an Armstrong number or not using command line arguments.

An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself. For example, 371 is an Armstrong number since 3**3 + 7**3 + 1**3 = 371.

Solution:

```
#include
#include
#include int main(int a, char*b[])
{
int n;
n= atoi(b[1]);
int sum=0;
int temp=n;
int cnt=0;
```

```
while(n!=0)
{
n=n/10;
cnt++;
}
n=temp;
while(n!=0)
{
int rem=n%10;
sum=sum+pow(rem,cnt);
n=n/10;
}
if(temp==sum)
{
printf(“yes”);
}
else
{
printf(“no”);
}
return 0;
}
```

TCS Ninja Coding question 14:

Write a program to generate Fibonacci Series.

Solution:

```
#include
#include
int main(int a, char *b[])
{
int i, n, t1 = 0, t2 = 1, nextTerm;
n=atoi(b[1]);
for (i = 1; i <= n; ++i)
{
printf(“%d “, t1);
nextTerm = t1 + t2;
t1 = t2;
t2 = nextTerm;
}
return 0;
}
```

TCS Ninja Technical Interview Questions

In TCS Ninja technical interview round, the questions will mostly be based on the following topics:

1) Core Subjects: You need to be very clear about subjects of your interest or subjects you have mentioned in the resume. Technical Interview questions will be purely based on those subjects.

TCS Ninja Technical Interview questions for CS students – since you are from IT background, you will be tested on your programming knowledge. A lot of CS students were asked questions on Computer Networks, DBMS, Software Mangement, Operation systems and Cloud Computing.

TCS Ninja Technical Interview questions for Non-CS students – Being from a non-CS background, you are expected to have basic programming knowledge. Non- CS students were asked to write down the code for simple programs. A few of them are:

- Swap two number without using a third variable
- Generate Fibonacci series starting from 0
- GCD of two numbers
- Check whether a number is palindrome or not
- Factorial of a number
- Check if the year is a leap year or not
- LCM of two number

2) Projects: You need to thoroughly know every detail about the projects you have mentioned in your resume. **Students were asked to write down the logic or draw the circuit diagram as well.**

TCS Ninja HR Interview Questions

TCS Ninja interview questions asked in the HR round are given below. Try to develop an answer for each of these questions. Do not by heart it. Rather list down all the points for each question. This will help you reduce the pressure during the interview.

- Tell me about yourself
- What do you know about TCS?
- What do you think is the biggest strength of TCS?
- What are your areas of interest?
- What are your strengths and weaknesses?
- Are you ready to work anywhere in India
- Where do you see yourself in the next 5 years?
- Are you willing to work in different shifts?
- Why TCS?

Important tips for TCS Ninja Interview

These are a must know things before you attend the TCS Ninja Interview process. Keep these in mind while you prepare.

1) Have a **clear idea about everything you have written in your resume**, especially projects.

2) Answer every question with **confidence**.

3) If you do not know the answer to any question (technical), it is better you tell the interviewer that you have no idea about that subject/concept. **Never give a wrong answer assuming the interviewer has no idea about it**.

4) Try to give a detailed answer to every question with examples.

5) Research about TCS and its products.