**HR**

1. Describe a situation where you had a conflict with a team member? How was it resolved?

2. What skills do you have that make you a good fit?

3. Tell me a time when you had multiple deadlines, and how did you handle it?

4.How do you handle several projects simultaneously?

5.What are your strengths and weaknesses, according to your advisor?

6.How did you handle a situation when you missed a deadline?

7.How was your experience at Grad School?

8.If you are the dean of your university, what would you change?

9.How did you approach a task which you had no knowledge beforehand?

10.Why did you apply at Math Works?

11. If I gave you $2000 for training, what training would you use it for?

12.What is your plan after EDG?

13.Describe a situation where you had a conflict with a team member? How was it resolved?

14. Tell me about a team project and why you think it was successful.

15.What would your manager say about you? Both positive and negative.

16.Any other offers?

17.time management, most difficulty situation -and how did you tackle

18. Team Work

Why i want to join math works (goodwill i want to help people (researcher) to complete their work )

**Onsite interview**

There are three rounds on this:

A) a two hour long technical interview, same basic concept questions like the phone interview. They go a bit deeper

B) an hour chat with the hiring manager, most of the questions are behavioral. Before the final round, two of the application support engineers will take you to lunch and chat with you

C) Asked me about the work that I had written in my resume. What are your interests? Why Math Works?

D) HR interview. **Math Works core values** and come up with **examples when you demonstrate these values**. Behavioral - time management, most difficulty situation -and how did you tackle, explain about projects and your role, multitasking, strengths and weakness, team management.

E) They will ask you about your expected salary, what is your immigration status.

F) Interviewer wanted to know my thought process. From your submitted references, list one and notify what he/she thinks about you

G) Technical onsite interview: You will be asked to find errors on codes (I was given a multithreading code that has no lock on critical section), predict output from provided codes (nested try catch and finally), code on whiteboard (any recursive sorting algorithm, remove \* and characters surrounding it), and textbook programming questions.

H) 3-4 rounds **9 am - 2 pm**

**3rd round:**

* It'll be a must to be familiar with matlab.
* The interview was spontaneous, the interviewer doesn't give time to respond to questions you got to be really quick. They ask you to choose between multiple technologies for the phone interview you have to choose 2 in them, the interviewer looks for how well you have understood the concepts and not just the rightness of the answer, and communication skills matter a lot, you have to be very clear of what you answer and explain
* BE SURE TO ASK FOR THE QUESTIONS PROPERLY
* BE VERY CLEAR ON WHAT YOU EXPLAIN , BE SURE TO ASK IF THIS ANSWERS THEIR QUESTION
* THIS IS BECAUSE SUPPORT ROLE
* P.S-> I think your accuracy while answering should be nearly 100%.

The third round was a phone interview for around 45 mins,

Where there was screen sharing and the interviewer posted a few code snippets and asked questions based on specific statements in the code, in C ++ there were questions regarding copy constructors and whether a particular statement based on "=" operator would compile or not and in java there were questions based on a base class reference pointing to a derived class object, garbage collection and enum.

Phone interview with questions on concept (control systems, linear algebra)

**3rd Round Detail**

Phone Interview with Codeshare by hackerrank You have to schedule an interview after which you will receive an email about the process. It's more of a syllabus that you should prepare. 5 sections: One expertise area, programming concepts, 2 languages and Math.

Interviewer asked my preference at the start. I was interviewed in the following order: Math(Calculus: around 10 question), Programming concepts (4 questions), C/C++ (around 12-15 question including subquestion), MATLAB (5 question) and finally Control Systems (10 question).

Total time taken: 50 mins

Total questions: around 40-42

Math I answered everything correctly with correct explanation, very easy.

Programming Concepts I answered this also correctly but in one question told a different approach than what he wanted so he gave me a hint and I told it correctly.

C/C++: A little difficult for me as I don't use it much. Asked whether code will compile, why it will or will not. If yes Output. This was for every code he displayed which I think were 5 of them. Codes were of pointers, function overloading with dynamic memory, class, pointer to base class with dynamic memory.

I answered a lot of it correctly. He gave me hint at some places, but they were when he wanted in depth view of my answer.

MATLAB: Very simple same questions given here.

Control Systems: This is where I think I got rejected. None of the questions were the same as given here or asked the seniors of my university previously. I answered only one question completely wrong (though an easy one) and in one said forgot the concept. But by this time, I was little exhausted by his rapid fire and the question which I answered wrong took toll I blabbered a little in the rest 3-4 questions, but the answer was correct.

**3rd round questions:**

* got too deep in the theory of any programming language. select best two languages
* Controls, Signals, Embedded, OOPS - Focus on any one area.

3rd round - Questions were based on basic programming concepts, output of code snippets , simple for loop or searching pseudo code, built in function and keywords in MATLAB , DFT , IDFT ,FIR ,IIR , Nyquist theorem in DSP

**2nd round questions:**

Select 3 out of 6 parts. Math is required, select one from Python and MATLAB, one from Java, C/C++ and JavaScript. **15 min(6Q) + 30 min(30Q) + 30min(Code)**. MATLAB part is kind of hard. Java and Math is ok.

One focus area that you feel most comfortable with. Options include:

· Object Oriented Design- software design, advanced OOP concepts

· Control Systems- classical control, modern control, and non-linear systems

· Signals Processing- concepts such as aliasing, convolution, and transforms

· Embedded Systems- Real Time Operating Systems, scheduling, and general OS concepts

Programming concepts - Programming constructs, data structures, object oriented programming concepts. Any 2 of the following 4 choices in programming languages:

· C/C++

· MATLAB or Python

· Java

· Web Programming (JavaScript, HTML/HTML5, XML)

Math, problem-solving and application of

· discrete math, computation, and algorithm theory etc., OR

· calculus, differential equations, and linear algebra etc.

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**select Matlab as one of your programing language or they won't let you pass the phone interview**

**Code**

* c++ section had two coding questions, one was simple class and inheritance based, other one was a bit tricky related to string sorting. c++ section also asked for code outputs.
* Inherit a class and override add（int a, int b), return a+b. Garbage collection, finalized, which has override for String: +, - , \*, /
* programming problem like, how many holes in the give number
* A coding challenge question was rearranging the letters of a word to get an alphabetically larger string (C++).
* C++ questions were all about object oriented programming: classes and class inheritance.
* intimately familiar with C/C++ and MATLAB itself.
* Implementing class inheritance, max difference of two numbers on array
* code is about pointers, function overloading with dynamic memory, class, pointer to base class with dynamic memory.
* implementing class inheritance, max difference of two numbers on array
* Asked to write program to draw 1/8th of a cirlce
* Asked to write a sorting program
* Shortest route for an ant crawling on a solid cube from one corner to diagonally opposite corner
* Sort HashMap by value and reversing words in a sentence.
* (C++)initializing base class members from derived class through derived class constructor and Max Difference in an array.
* Reverse words in a string.
* Iterators.
* Find the maximum difference between the elements of an array, where only array is passed as an argument to the function
* Create a derived class from two classes already defined. Initialize the private members of the base class, create a constructor and add a function whose syntax was given
* Fibonacci series using recursion
* Given a random array of numbers.How do you sort them?
* Select any sorting algorithm and write the pseudo code.(C)
* String reversing, Printing largest value from the Hashmap and OOPS concepts.
* Write a code to reverse the string "hello world" to "world hello"
* write a code to sort alphanumeric list in descending order (hashMap)
* Removing duplicates in an array
* Reverse the words in a string e.g. Input - Hello World; Ouput - World Hello
* A question involving constructing a derived class and initializing appropriately using constructors.
* Maximum forward difference in an array of elements.
* Static Keyword
* coding part: implementing class inheritance, max difference of two numbers on array
* 2 C++ coding: Very simple if you know Inheritance and pointers.
* For C++ you should know it completely: from basic function overloading to pointer class inheritance and exception handling. Reading Cplusplus.com tutorial is more than enough.
* C/C++ malloc calloc oops concepts, output and errors
* Reverse words in a string, sort HashMap values based on value

**Python**:

Given a random number, figure out how many zeros at the end of the number.

questions related to static, oop, python modules,

Private fields in Python?

Library questions

asked some library related questions on python.

**The test doesn't test proficiency in C++ or MATLAB. Obviously if you have good proficiency (in 2 of the 5 languages) its best but not required for this test. The test is designed to test your knowledge.**