ITER, SIKSHA 'O' ANUSANDHAN

(DEEMED TO BE UNIVERSITY)

Accredited by NAAC of UGC with 'A' Grade

Coding Questions for Interview

Q1. Write a java program to evaluate the function sin(x) as defined by the infinite series expansion.

$$sin\ (x) = x - x^3/3! + x^5/5! - x^7/7! + \ldots$$

The acceptable error for computation is 10^{-6}.

Q2. Write a java program that accepts a positive integer n and reverses the order of its digits.

Q3. Write a java program to compute the square root of a number using Newton's method.

Q4. Write a java program that reads an integer and displays all its smallest factors in increasing order. For example, if the input integer is 120, the output should be as follows: 2, 2, 2, 3, 5.

Q5. Write a java program GCD that finds the greatest common divisor (gcd) of two integers using Euclid's algorithm, which is an iterative computation based on the following observation: if *x* is greater than *y*, then if *y* divides *x*, the gcd of *x* and *y* is *y*; otherwise, the gcd of *x* and *y* is the same as the gcd of *x* % *y* and *y*.

Q6. Write a java program called PrimeCounter that takes a command line argument N and finds the number of primes less than or equal to N.

Q7. Amicable numbers are pair of numbers each of whose divisors add to the other number. Example: The smallest pair of amicable numbers is (220, 284). They are amicable because the proper divisors of 220 are 1, 2, 4, 5, 10, 11, 20, 22, 44, 55 and 110, of which the sum is 284; and the proper divisors of 284 are 1, 2, 4, 71 and 142, of which the sum is 220.

Note: 1 is included as a divisor but the numbers are not included as their own divisors.

Write a java program that tests whether a given pair of numbers is amicable numbers or not.

Q8. A perfect number is one whose divisors add up to the number.

Example: The first perfect number is 6. because 1, 2, and 3 are its proper divisors, and 1+2+3=6

Write a java program that prints all perfect numbers in between 1 and 500.

Q9. A *palindromic prime* is a prime number and also palindromic.

For example, 131 is a prime and also a palindromic prime, as are 313 and 757. Write a java program using method that displays the first 100 palindromic prime numbers. Display 10 numbers per line, separated by exactly one space, as follows:

2 3 5 7 11 101 131 151 181 191

313 353 373 383 727 757 787 797 919 929

Q10. Twin primes are a pair of prime numbers that differ by 2. For example, 3 and 5 are twin primes, 5 and 7 are twin primes, and 11 and 13 are twin primes.
Write a java program using method to find all twin primes less than 1,000. Display the output as follows:

(3, 5)

(5, 7)

...

...

Q11. Given the two fractions *a/b* and *c/d*, write a java program using method that will compute their sum in terms of the smallest common denominator.

Q12. Write a java program to convert a decimal integer to its corresponding octal representation.

Q13. Write a java program to insert an element at specific position of an array.

Q14. Write a java program to transpose a square two-dimensional array in place without creating a second array.

Q15. Write a method that returns a sorted string using the following header:

public static String sort(String s)

For example, sort("acb") returns abc. Write a java program that prompts the user to enter a string and displays the sorted string.

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