Lecture 13: Quiz

Name: 

Problem 1

The computer on the ground floor of the Harvard science center is called:
   a) ENIAC 
   b) Bomba 
   c) Colossus 
   d) Mark I 

Problem 2

What is experimental mathematics?
   a) Assist as a mathematician in an experimental lab. 
   b) Search for relations and theorems using computers and calculations. 
   c) Publish theorems which are likely to be true. 
   d) Take results from experimental science and rewrite them mathematically. 

Problem 3

Which first significant digit appears more often in Benford's law
   a) the digit 5 appears most often as it is the average. 
   b) the digit 1 appears most often. 
   c) the digit 9 appears most often. 
   d) all digits appear with the same frequency 

Problem 4

Who is considered the first programmer?
   a) Blaise Pascal 
   b) Ada Lovelace 
   c) Charles Babbage 
   d) Steve Jobs 

Problem 5

When was Pascal’s calculator built? 
   a) 1542 
   b) 1642 
   c) 1742 
   d) 1842 

Problem 6

Which of the following decision problems are known to be in NP?
   a) Graph isomorphism 
   b) Factoring integers 
   c) Integer partition problem 
   d) Is n a prime number? 

Problem 7

What is a Turing machine?
   a) A device to measure complexity. 
   b) A quantum computer. 
   c) A difference machine by Babbage. 
   d) A special Abacus. 

Problem 8

What is Moore's law?
   a) The number of transistors on a microchip double every 2 years. 
   b) It is necessary to replace a computer every 2 years. 
   c) Moore's law is that there is no Moore's law. 
   d) Every two years, the size of a computer shrinks by a factor of 2. 

Problem 9

We have looked at the Goldbach problem. What was this problem?
   a) There infinitely many prime twins. 
   b) Every even integer is a sum of two primes. 
   c) The golden ratio can be approximated by rational numbers. 
   d) The problem of finding the statistics of the first significant digit of the primes. 

Problem 10

Who showed that there are uncomputable decision problems?
   a) Charles Babbage. 
   b) Alan Turing 
   c) Pierre Fermat 
   d) Kurt Goedel