

# CS105 (DIC on Discrete Structures)

## Exercise problem set 10

Solve the following questions from Douglas West's book, *Introduction to Graph Theory, 2nd Edition*.

1. Simple questions: Exercises 1.1.4, 1.1.9
2. Medium level: Exercises 1.1.19, 1.1.41, 1.1.42, 1.2.13, 1.2.20, 1.2.38
3. Simple: There are 100 circles forming a connected figure on the plane. Can this figure be drawn without lifting the pencil off the paper or drawing any part of any circle twice? Why or why not?
4. Not-so-simple: Prove or disprove: If a simple graph  $G$  with  $n$  vertices has more than  $(n - 1)(n - 2)/2$  edges, then it has only one connected component.