CALCULUS 1 FINAL EXAM STRUCTURE (FALL 2017)

1. **Find the limits.** (4 problems) (Some of them may need L'Hopital's rules.)
2. **Find and classify the discontinuities.** (1 problem)
3. **Use the limiting process to find the derivative or the slope of a tangent line.** (1 problem)
4. **Find the derivatives.** (2 problems)
5. **Implicit Differentiation.** (1 problem)
6. One of the following two types of problems: (1 problem)
   - **Logarithmic differentiation.**
   - **Find the derivative of the inverse function f^{-1}.**
7. **Related rates word problems** (1 problem) (triangles-ladder or rocket, conical water tank, spherical balloon)
8. **Optimization word problems** (1 problem) (rectangular field, open box, cylindrical can)
9. **Absolute maximum and minimum** (1 problem)
10. **Graph polynomial or rational functions** (1 problem) (intercepts, asymptotes, symmetries, increasing and decreasing, local maxima and minima, concavities, inflection points)
11. **Find the antiderivatives.** (3 problems)
12. **Parametric equations** (1 problem) (Find derivatives without eliminating the parameters.)