

## NETWORK INDUSTRIES

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1. You should read the instructions, the entire exam and all of the questions before answering any of the questions. The exam is a single set of facts and facts in one question apply across each of the questions.

2. Place your examination number on each page.

3. This is an open-book (but not open network), three-hour in-class examination. You may consult any materials you wish, except that (i) you may not consult anyone else and (ii) you may not use the Internet or any database service (such as Westlaw or Lexis/Nexis). Please do not discuss the exam with anyone until the examination period is over.

4. This examination consists of four (4) pages. Please make sure that you have all of the pages.

5. There are three (3) questions, with a total of nine (9) units for weighting purposes for grading. Each question consists of three (3) units and the weight for the question is set forth next to the question.

6. While the questions address an integrated set of facts, I grade each question separately, so you should not cross reference answers across questions.

7. **Your answer should be no more than 3000 words (approx. 333 words per unit).** Please provide a word count at the end of the exam.

8. Answers should be written in full English sentences and should refer to specific statute sections and cases where relevant. If an exam question is unclear, point out the ambiguity and then answer the question to the best of your ability.

9. In answering the questions, you should assume, except as otherwise provided in the exam itself, that the applicable version of any relevant statute is that set forth in the class materials. The law is the law of today, even if the exam is set at a different time.

10. Good luck.

**NOTE: APPLY THE LAW AS IT EXISTS TODAY**

It is the near future—call it 2016—and personal transportation, which for so long hadn't changed meaningfully, is in the midst of an enormous transition. The automobile is changing. For most of the last 100 years, cars have been driven by individuals and have run on gasoline or diesel engines. Those cars refueled at the gas stations that have dotted the American landscape.

Two critical changes are upending personal transportation. First, as was clear even in early 2013, autonomous, software-controlled vehicles promise far superior driving. Humans get tired and distract easily, but other than the occasional bug, software runs and runs and runs. Autocars, as they are known to all, run on software and communication and drive themselves. The second major change followed a 2014 breakthrough in rechargeable battery technology.

**Question 1 (3 units)**

Google was an early mover in the autocar space. In early 2013, many municipalities were looking to transition their street light systems. They wanted to swap-out old-style bulbs for new LED systems and to operate the system wirelessly using unlicensed spectrum and mesh networks. Mesh networks operate in a peer-to-peer fashion—talking to each other—where particular nodes typically hook into an underlying broadband network through a Wi-Fi connection. Since early 2013, Google had been going from town-to-town negotiating for exclusive access to public street lamps promising to upgrade the light systems and install the wireless mesh networks on the condition that Google could use the streetlamp-based wireless mesh system (the “Google SWMS”) for other uses.

The SWMS was critical to Google's vision for the autocar. The wireless network would include sensors such that cars could use information from the location of the streetlamps, combined with more general GPS navigation information, to assess the location of the autocar and to communicate with it. Google planned to communicate between the SWMS and the autocars using a patented communications protocol that Google had developed (the “Google Autocar Protocol” or “GAP”).

As Google's competitors got wind of the deals that Google had put in place, they started to complain. The competitors wanted municipalities to require Google to offer the right to hook up their systems to GAP at just and reasonable rates and/or to allow the competitors to install their own wireless sensor systems on the street lamps.

**Question:** Discuss. Be sure to discuss possible legislative alternatives available to municipalities.



**Question 2 (3 units)**

The rise of the autocar wasn't the only change afoot in personal transportation. Power technology was changing as well as the car industry was switching from burning fossil fuels to an electric car with a new rechargeable battery. This posed its own issues. For a standard-sized car, the battery would permit travel of roughly 250 miles, but then the battery need to be charged for four hours. There was an alternative: battery swapping, where the car would stop at a charging station and swap the empty battery for a second fully-charged battery. Of course, battery swapping only worked among compatible batteries. Two different sized batteries couldn't be swapped, just as you can't exchange a double-A battery for a triple-A battery in a flashlight.

A grand coalition was formed among five of the leading manufacturers of cars and three of the leading oil companies. (The coalition left out a number of major and smaller car producers and roughly half of the major oil companies.) The coalition car companies agreed to a common battery format and coalition oil companies agreed to retrofit their existing gasoline stations such that they would be able to do battery swaps and charge empty batteries. With the new infrastructure in place, swapping batteries would take perhaps twice as long as filling up a tank of gas.

It is of course hard to make this sort of market switch. Retrofitting the gas stations would involve a substantial expense and consumers might be understandably nervous about purchasing a new technology which was dependent on the rise of a new common infrastructure.

**Question:** You work on the staff of a United States senator and she would like to consider potential legislation to help advance this situation. She recognizes the concerns of consumers and of the coalition members, but also understands that current incumbents outside the coalition are voters as well. She would like a recommendation from you on the shape of potential legislation for this new industry.

**Question 3 (3 units)**

Google's competitors failed in their effort in Question 1 to gain access to the Google SWMS or to Google's Autocar Protocol (again, GAP). But Google hoped that the mesh system and GAP would emerge as an important transportation platform and issued a terms-of-service ("Google TOS") document to encourage other firms to build on that platform. Key terms of the Google TOS included:

- No firm would be allowed to access the SWMS without Google's permission and no device could be connected to the SWMS without the prior written approval of Google.

- In an effort to channel development efforts, Google emphasized that it would not approve access to the SWMS of any autocar protocol that it deemed, in its sole and absolute discretion, competitive to GAP.
- Google committed that in an effort to encourage rapid development of autocars, it would make sure that autocars always had the highest priority in the use of the capacity of the SWMS.

**Question:** Again, you work for a U.S. senator. Evaluate the Google TOS for her and recommend sensible legislation, if any, for this situation.

