

# **EXAM 1**

NAME: \_\_\_\_\_

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**AEM 4550: ECONOMICS OF ADVERTISING  
CORNELL UNIVERSITY  
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**MARCH 3, 2016**

100 points = 100%  
103 points = 103% !

**Show all work. Write legibly.**

**Calculators permitted.**

**No computers.**

**1. (Total 26 Points)** You have been hired to be a consultant to a new company “NUTRI-BOOST” which produces a new (patented) nutritional supplement for people battling osteoporosis. It is estimated that “NUTRI-BOOST” demand curve is  $P = 200 - 2Q$  and both marginal and average costs to produce one product is:  $MC = AC = 20$ .

a) **(8 points)** Solve for the profit-maximizing level of output, price, and profit for “NUTRI-BOOST”.

b) **(8 points)** Suppose that the demand with advertising is  $P = 240 - 2Q$ . Calculate elasticity of demand at the optimal price and quantity for the new demand curve.

c) **(7 points)** Given the elasticity of demand in (b), suppose the advertising elasticity of demand is estimated to be 0.2. Using the Dorfman-Steiner model, calculate what the optimal level of advertising expenditure is.

d) **This part is optional. (3 Bonus points)** Suppose “NUTRI-BOOST” has the opportunity to spend \$ $A$  on advertising, to raise its demand to  $P = 240 - 2Q$ . Solve for the most “NUTRI-BOOST” would spend on advertising, in this situation.

2. **(Total 16 points)** Graph side by side the impact of (a) Informative Advertising **(6 points)** and (b) Persuasive advertising **(6 points)** on demand. Is it true that under both scenarios profits will increase? If yes, identify the primary source of profit increase in both cases. If no, explain why **(4 points)**.

3. **(Total 22 Points)** The table below represents the world-wide market shares of smartphone companies, based on the data on manufacturer sales to their distributors, operators (service providers) and individual customers in 2015. Please answer the following questions:

**Handset market share information.**

<b>Brand</b>	<b>Market share</b>
Samsung	21.4 %
Apple	13.9 %
Huawei	8.7 %
Xiaomi	5.6 %
Lenovo	4.7 %
Other	45.7 %

- a) **(8 points)** Calculate the Herfindahl-Hirshman Index in this industry. What does HHI measure? What can you tell about this industry from your calculated HHI?

b) **(7 points)** Assume that all advertising by these smartphone manufacturers is persuasive in nature. Explain the relationship between market power and persuasive advertising. You should tie in the following terms in your explanation: price elasticity, product differentiation and market concentration.

c) **(7 points)** Assuming that the advertising is combative in this industry (recall, ads can be persuasive AND combative at the same time), explain what would happen to Samsung's market share if Samsung suddenly increased its advertising expenditures and its competitors maintained the same level of advertising as before. Your explanation should also include the characterization of what combative advertising is.

4. **(Total 10 points)** Consider the academic article by Daniel A. Akerberg (2001) "Distinguishing Informative and Prestige Effects of Advertising".
- a) **(8 points)** How does the author use the types of consumers to identify the actual effects of advertising (informative, prestige)?

b) **(2 points)** What effect dominates in his empirical analysis?

5. *Advertising theory and empirics.*

- a) **(8 points)** What are the four different types of (demand side) advertising views. Briefly explain each of the views.

b) **(6 points)** List 3 empirical generalizations from recent research about advertising effects.

c) **(5 points)** What is advertising goodwill? What does empirical research say about advertising goodwill?

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d) **(5 points)** Briefly explain the signaling role of advertising.

- e) **(5 points)** Draw a CONCAVE relationship between sales and advertising expenditures. Intuitively explain why this relationship exists.





EXTRA PAGE