Indian Institute of Technology, Patna

HS201 - Micro Economics

MID SEMESTER EXAMINATION
FALL 2020

INSTRUCTIONS TO CANDIDATES

a) This is an **open book** examination.
b) Write your **name and roll number on the answer sheet**
c) The question paper comprises 3 pages
d) Answer all questions. Upload your handwritten answers showing all steps and diagrams wherever necessary.
e) All questions have equal weight.
f) You will have to put your digital signature against the declaration below. Papers without the signatures will not be checked.

I, ……Kush Gosalia…… declare that I have not resorted to any unfair means in answering this paper. If found otherwise, I agree that my paper will be cancelled.

Name: Kush Gosalia **Signature:**

This portion is for examiner's use only

	Marks	Remarks
1		
2		
3		
4		
Total		

1. Between 2008 and 2009, average circulation of U.S. newspapers fell by 7%. The *New York Times* suffered a relatively smaller decline, with weekday circulation falling 3.6% to 1,039,031. The *Times* announced a quarterly loss of $74 million with circulation revenue increase slightly due to a price increase in 2008 from $1.25 to $1.50. In early May 2009, it was reported that the *Times* would raise its weekday price from $1.50 to $2 and that the price increase would increase revenue by $40 million. (Source: "New York Times set to increase price", *Financial Times*, May 2, 2009). **10 marks**

a. Using the 2008 price and circulation information, calculate the price-elasticity of demand for the *New York Times* weekday edition.

b. At the current circulation of say 1.04 million and price of $1.50, and assuming 300 weekdays a year, what is the New York Times' current annual revenue from weekday sales?

c. Consider the expected 2009 price increase from $1.50 to $2. What is the percentage change in price?

d. Suppose that the expected 2009 price increase from $1.50 to $2 does indeed yield $40 million in incremental revenue. What is the percentage change in revenue over your answer in (b)?

e. Substitute the percentage changes from (c) and (d) into the following rule: percentage change in revenue = percentage change in price + (price-elasticity of demand x percentage change in price). (Note that this rule was not taught in the lecture on elasticity.) Calculate the price-elasticity of demand which would imply the $40 million increase in revenue.

f. Compare the elasticity from (e) at a price of $1.50 with the elasticity from (a) at a price of $1.25. Does the difference in elasticities seem reasonable?

2. In late 2005, software giant Microsoft announced that it would increase R&D spending by $2.6 billion the following year. Wall Street analysts worried that the increased investment would reduce earnings and shareholder return. However, Microsoft CEO Steve Ballmer suggested that Microsoft had delayed the update of Windows too long. "Windows is a product that has to be watered periodically … We've gone a bigger gap than I'd like to go [this time]" (Source: "Ballmer lobbies for Microsoft's R&D spending plan", *Computerworld*, January 6, 2006). **5 marks**

a. Referring to Table 8.6, calculate Microsoft's R&D-sales ratio for 2003-05.

Table 8.6 Microsoft ($ million)

Year	Sales (Revenue)	R&D Expenditure	R&D/Sales
2005	39,788	6,184	15.5%
2004	36,835	7,779	21.1%
2003	32,187	6,595	20.5%

b. If Microsoft predicted sales revenue to be the same in 2006 as 2005, with the increase in R&D spending, what would the R&D-sales ratio? Comment on this ratio in relation to previous years.

c. Relate Microsoft's plan to increase R&D expenditure to Mr Ballmer's remark that they had waited too long before updating Windows.

d. Did Microsoft under- or over-estimate the sensitivity of the demand for Windows to updating?

3. The administration of Prime Minister Lee Hsien Loong seeks to "re-make" Singapore as a travel destination. It has invited tenders for two integrated resorts, including casinos. One will be located in Marina South to attract the meetings and convention business, while the other will be located in Sentosa Island to attract tourists. Typically, Australian governments have auctioned casino licenses for a lump-sum fee. By contrast, European governments have charged casinos a gambling tax. **10 marks**

(a) Suppose that a lump sum fee of $100 million per year and a 25% betting tax would raise the same revenue for the government. Suppose that the casino applies uniform pricing and that marginal cost of operation is constant at $1 per bet. Compare the two policies in terms of (i) the price of betting, and (ii) the volume of betting.

(b) Would you recommend that the government use the lump-sum license fee or the betting tax?

(c) Whales are people who travel worldwide to gamble on a large scale. Casinos compete to attract whales with special facilities, free air travel and accommodation, and other perks. How should casinos adjust the odds to whales relative to small-scale gamblers?