Nam	e:
	Project Evaluation ry 28, 2003
	Quiz # 1
Proble	m 1 (30 points)
taking a \$200/m to avera require Annual	we purchased a new car for \$12,000 (including taxes and dealer preparation), advantage of a special 0%/60 month financing offer (so that your car payment is nonth for 60 months). Your insurance will be \$1200 per year. The car is expected age 30 miles per gallon, and gas is expected to cost \$1.50 per gallon. The car is routine inspection and maintenance at intervals of 5,000 miles at a cost of \$150. excise taxes are \$100. You expect to drive 5,000 miles per year. Assume that losts are unchanged over the life of the car.
a.	What are your fixed monthly out-of-pocket costs of owning and operating the car during the first 5 years you own the car? During the sixth year? (5 points)
b.	What are the variable costs per mile of owning and operating the car? (5 points)
C.	Accuming that wave MADD is 80/ het did was well, was Could as Circulate
	Assuming that your MARR is 8%, what did you really pay for the car (i.e. what is the present worth of your car payments?) (10 points)
	payments)

Name:		
Name:		

- d. (10 points) Plot your average cost per mile of owning and operating the car as a function of monthly mileage, assuming that
 - monthly usage is between 500 and 1,000 miles
 - the life of the car is 10 years, and that
 - your MARR is 8%.

Problem 2 (20 points)

A new building is expected to cost \$5,000,000 and will last for 50 years, assuming that \$500,000 is spent on a major rehabilitation at the end of year 20. Routine maintenance and management expenses are expected to cost \$10,000 per year. The building is expected to be leased to a major firm for the life of the building. What is the uniform monthly payment that would be equivalent to these costs over the 50-year life of the building, assuming a discount rate of 8%? (Ignore taxes, inflation, depreciation and any other complicating factors that you may worry about.)

Name:				
Probl	em 3 (10 points)			
Assun	ne interest is compounded daily (i.e. continuously).			
Estim	ate the following:			
a. Th 10%:	e future value of \$1,000 invested for 22 years at 5%, then reinvested for 7 years at			
b. Th	e present worth of \$600,000 due in 7 years, assuming that your MARR is 10%:			
c. Wł	nich is worth more today:			
\$10,00 \$6,500	00 that you would receive in 22 years or 0 that you would receive in 14 years, assuming your MARR is 5%			
Probl	em 4 (20 points)			
What	is wrong with the following statements:			
a .	Boston can sell municipal bonds with an interest rate of 4%, so the City can use a discount rate of 4% in evaluating projects.			
b.	A company can borrow money at 6%, but the stock market requires a 12% return; the company therefore should use a discount rate of at least 12% in evaluating projects.			
C.	A construction company has built numerous office buildings throughout the U.S. and has consistently been able to achieve a return-on-investment of 10%. In evaluating opportunities to invest in Colombia, Bosnia, and Rwanda, the company can therefore safely use a 10% discount rate.			

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- d. An investor is happy with a 6% return on investments in corporate bonds; this investor would therefore be willing to invest in your scheme to build hotels, because you also expect a return of 6%.
 - e. An investor expects at least a 15% return when investing in telecommunications stocks. This investor would therefore not be interested in buying municipal bonds that pay 4% or corporate bonds that pay 6%.

5. Discuss one of the following (20 points):

- a. Clearly, there are economies of scale in construction and operation of transit vehicles. The larger the bus, the lower the cost/seat for both construction and operation. What determines the size of new buses that you might use for a new express commuter bus service?
- b. In the early 19th century, canals took traffic off the roads in the eastern US. In the mid-19th century, railroads took traffic away from the canals throughout the same region. In the early 20th century, the Panama Canal took traffic away from the Panama Railway; in the later part of the 20th century, roads took traffic back from the railways in the US. What is going on?