**Questions for Economics Interview**

**Question 1**

The total costs (TC) function for a company is: TC = 28,000 + 95Q – 0.025Q2; given that Q = 10.

**Calculate the following:**  
(i) TFC = TC - TVC

(ii) TVC = TC - TFC

(iii) AFC = TFC/Q

(iv) AVC = TVC/Q

(v) AC = TC/Q or AVC + AFC

(vi) MC 

**Question 2**

**The cost function of a manufacturing firm that is producing television sets is   
estimated as: TC = 250 + 150Q – 2.5Q2 + 0.5Q3**  
  
(i) Derive the MC and AC functions 

(ii) What are the total costs and average cost at an output of 123 units?

(iii) What is the value when AC is at a minimum? 

(iv) What is the value when MC is at a minimum?

**Question 3**

Explain how each of the following events will affect the average and marginal cost   
curves of a firm 

AC = AVC + AFC

MC is the first derivative of AVC or the marginal cost of AVC  
  
a) a decrease in labour rate  
  
b) an increase in rent for a facility   
  
c) stricter environmental regulation requiring installation of scrubbers on smokestacks;   
  
d) a decrease in cost of utilities  
  
e) a decrease in learning on the part of labour

**Question 4**

Call Us demand function is Q = 20 – 0.2P and the MC = 10 + 5Q. Given that TFC = $2,000;

a) Derive an equation for the TC. 

b) Calculate the profit at the profit maximizing level.

**Question 5**

A lawyer is contemplating quitting her current job with a major corporation (annual salary EC$600,000) to open her own law firm. She estimates that the total of operating the office is approximately EC$250,000 per year. The potential revenue is estimated as EC$800,000 per year. Calculate the following:  
  
a) Total accounting profit

b) Total economic profit

c) What should she do?

**Question 6**

The production manager of a clothing manufacturer estimates that the total annual cost  
of producing suits is given by the equation TC = 5,000 + 4,100Q – 8Q2 + 0.004Q3.  
  
a) If the market price is constant, what is the shutdown level of output?

b) What is the minimum price the firm can accept? 

**Question 7**

The economics department of Western Drilling, a producer of natural gas, has  
estimated the long-run total cost function for natural gas distribution to be   
TC = 200Q – 0.004Q3, where Q is millions of cubic feet (MMCF) of natural gas.  
  
a) Determine an equation for the long-run AC of distributing natural gas. (2 marks)   
  
b) Is the production process characterized by decreasing, returns to scale? (3 marks)   
  
c) At present, Western produces but not distributes natural gas. Interstate Pipeline is the only distributor of natural gas in the region and it carries about 100 MMCF per day. Management at Western estimates the regional market will grow from 100 to 150 MMCF per day and thinks it might be able to capture about 50% of the increase in the size of the market. Interstate has the capacity to deliver 200 MMCF per day. Will Western be able to compete against Interstate in the distribution of gas (assume Interstate has the same TC function)? (5 marks) 

**Question 8**

CCM television Station is considering selling promotional videos. It can have the  
videos produced by either Liguanea Company (Firm A) or Grant’s Pen Cooperative  
(Firm B). Firm A will charge the station a set-up fee of $1,200 plus $2.00 for each  
cassette, while Firm B has no set-up fee and will charge $4.00  
for each cassette. The station estimates its demand for cassettes to be:  
  
Q = 1,600 – 200P; where P is the price ($) and Q is the number of cassettes   
  
a) Suppose the station decides to give away the cassettes, how many cassettes should  
it order and from which supplier?

b) Suppose the station wants to maximize its profit, what price should it charge and   
how many cassettes should it order from each supplier?

**Question 9**

On Time Store produces digital watches on a single production line serviced on one daily shift. Maximum capacity is 120,000 watches per month, which requires 60,000 hours of labour per month. Total fixed costs are $600,000, the labour rate per hour = $8 and other variable costs per watch = $6. The marketing analyst estimates the demand equation to be Q = 560,000 – 20,000 P.

a) How many additional watches can be produced by an extra hour of labour? 

b) What is the marginal cost of an additional watch? 

c) What price should the firm set to maximise profit? 

d) The firm can increase capacity up to 100% by scheduling a night shift. The labour  
rate at night = $12 per hour. What is the marginal cost of an additional watch on  
the night shift? 