Course: Principles of Economics
Course No. ECON C212/ECON F 211
Max marks: 40
Date: 02-06-2013
Year: II & IV

Weightage: 40%
Time: 3 Hours

(i)   *Attempt all questions.*
(ii) *Use separate answer books for Part A and Part B.*

PART- A

1. Among the many environmental problems facing the United States is how to dispose of the vast amounts of garbage generated each day by households and businesses. In 1960, Americans discarded an average of 2.6 pounds of trash per person per day, but today the number is 3.8 pounds. As the volume of garbage grows, existing disposal sites are filling up, and it is becoming increasingly difficult to find new locations near urban areas for landfills.

   One small community used the law of demand to ease its garbage collection problem. Residents of Perkasie, Pennsylvania, were paying an annual fixed fee of $120 per resident for garbage collection and discarding a daily average of 2.2 pounds of trash per person. Because the collection fee was fixed, the additional expense to residents of trash disposal was zero, and they had no financial incentive to conserve on the amount of trash they produced.

   Perkasie began charging by the bag for garbage collection. The city required that all trash be placed in special bags sold by the city. For example, a large bag had a capacity of 40 pounds and sold for $1.50. Thus, the marginal cost to residents of generating additional trash increased from zero to about four cents per pound. Garbage that was not in an approved bag was not picked up. In addition, the city introduced a recycling program. Each household was given buckets to be filled with cans and bottles that were picked up every week. The city also arranged for newspapers to be collected once a month.

   The result was predictable- people began to dump less trash. During the first year the program was in effect, trash collections per person declined to less than one pound per day. Perkasie citizens benefited because they paid 30% less than before, and the city reduced its garbage collection costs by 40%.

   a) State the law of demand. How did it affect the residents of Perkasie Pennsylvania?
   b) What measures did the city adopt that resulted in reduced garbage and thereby reduced price of disposal for each household?
   c) How can the substitution effect be related to reduce garbage in Perkasie Pennsylvania?   [5]

2. Based on a consulting economist's report, the total cost and marginal cost functions for Advanced Electronics, Inc. are
   $$TC = 200 + 5Q - 0.04 Q^2 + 0.001 Q^3$$
   $$MC = 5 - 0.08 Q + 0.003 Q^2$$
   a) Determine the average variable cost (AVC).
   b) Determine the rate of output that results in minimum AVC.
   c) If fixed cost increases to $ 500, what output rate will result in minimum AVC?   [4]

PART – B

7. Read the following passage and answer to the questions given below it.

Pay as you go had started few years ago through Salik gates by RTA (Roads and Transport Authority) and addition was done on April 15, 2013 for two major routes to airport tunnel and Mamzar bridge to enter into Sharjah. Later it was found that major roads are facing congestion problems with not much difference in these routes. The main aim of reducing the traffic and improving the movement of the vehicles on the highway road is hailed but not everyone is convinced, especially the daily commuters who claim as no major difference.

    a) Discuss the positive and negative aspects of the Salik Charges.   [2]

8. Ricky an Engineering student and works on a part time basis for AED 43/- per hour in his free time and every week he spends two hours of his income to enjoy the weekend and have maximum utility for the money spent by him. He is passionate about Bowling and shooting and spends time only on these activities. Use the concept of marginal utility to suggest the optimal combination of Bowling and Shooting in order to achieve maximum utility. Price of Bowling 10 per game and Price of Shooting 6 per game. **[4]**

Units of Game	Total Utility Bowling	Total Utility Shooting
0	0	0
1	40	45
2	85	75
3	120	95
4	140	110
5	150	120
6	157	126
7	160	129
8	160	129
9	155	126

9. Saara cookies LLC is utilising its innovative and efficient method of production technology to produce two flavors of cookies one with sugar and other a sugar free under the same process. The Total Cost function of production is given as $TC = 38Q + 0.5Q^2$ and the demand function for sugar cookies and sugar free cookies is given as $P1 = 50 - 0.5Q \ and \ P2 = 60 - 2Q$ respectively.

a) You are required to suggest the price for these two cookies which yield you maximum profit.
b) The Production manager concludes that these cookies are exhibiting decreasing returns to scale as
per $Q = AL^{0.7} K^{0.4}$ Is it true or false. Justify the same.   [5]

10. Distinguish between the following: {Write a minimum of 4 points each}   [4]

a) Monetary policy and fiscal policy

b) Perfect competition and monopoly

11. Write short notes on the following: [1+2+2]

a) Inferior Good

b) GDP and GNP

c) Properties of Indifference curve.

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PART B

7. Student needs to write two positive aspects of Salik in terms of economy development, less consumption of petrol, avoiding personal vehicles going for carpooling, switching cost ofwear and tear of the cars...etc. (1)

Negative aspects   in terms of burden on the pocket of vehicles users, unnecessary jams on the other routes, travelling long ...etc.(1)

8 Using the concept of marginal utility Ricky will be using AED 86/- for two activities- Bowling and Shooting will be to exhaust income as 5 bowling and 6 shooting. (4)

To meet $\dfrac{MU_x}{P_x} = \dfrac{MU_y}{P_y} = \dfrac{86}{}$ (as two hours of income to be spent.)

After Calculating the Marginal utility for both activities and equating to exhaust the income

$$86 = 5.10 + 6.6$$
$$86. = 50 + 36$$

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9. Sara Cookies LLC

a) going with optimal pricing for joint products

$$P_1 = 50 - 0.5Q$$
$$P_2 = 60 - 2Q$$
$$TC = 38Q + 0.5Q^2$$

We need to satisfy $MR = MC$

$$TR_1 = (50 - 0.5Q)Q \qquad = 50Q - 0.5Q^2 \quad -- \text{①}$$
$$TR_2 = (60 - 2Q)Q \qquad = 60 - 4Q \quad --- \text{②}$$
$$MR_T = (50 - Q) + (60 - 4Q) = 38 + Q \cdots \text{③}$$

$$72 = 6Q$$

$$Q = 12 \quad \text{Substitutip in the } P_1 \text{ & } P_2$$

$$\therefore P_1 = \underline{44}$$
$$P_2 = 36$$

b) False as it represents increasing returns to scale as $Q = AL^{0.7} k^{0.4}$ $0.7 + 0.4 = 1.1$

It is greater than 1.

10. Distinguish between (Each point carries 0.5 Marks)

Student needs to mention at least 4 points as

a) Monetary and Fiscal policy in terms of taxation and spending, interest rates and how government uses these to control excess and deficit demand.

b) Perfect competition and Monopoly in terms of In terms of entry, exit, pricing policy, number of sellers, profit maximization conditions...ectc.

11. Write Short notes

a) Inferior Good: A Good which is not purchased or consumption decreases or decline in demand occurs with increase in income of an individual.

b) **GDP:** Gross domestic Product which is calculated to measure the standard of living of the country, It is calculated as the the total market value of all officially recognized final goods and services produced within a country in a given period of time generally annually. (Production with in borders).

 GNP is the market value of all the products and services produced within a given period of time by citizen's of country regardless of where the output is produced.

c) Three properties of indifference curve:

- downward sloping since when one unit consumption increases the other decreases reflects the rate MRS

-They are convex in origin as law of diminishing marginal utility holds true value of MRS decreases as the consumer moves away from the origin on to X-axis.

-do not intersect each other as the measure(yield) of level of satisfaction for goods differ .

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BITS Pilani

Dubai Campus

Second Semester 2012-2013
Test -2 (Open Book)

Course : Principles of Economics
Course No : ECON C212/ ECON F211   Weightage : 20%
Max Marks : 20   Time : 20 Minutes
                                                      Date : 21-04-2013
Year :II & IV

Note : Answer all questions with enough explanation and examples wherever required.

1. You are a manager of a Watch producing company facing the total cost given
    by $TC = 500 + 20\ Q^2$ and Price $P = 400 - 20Q$

    a) Suggest at what price and the amount of output will profit maximizing occur?

    b) Calculate the total profit. **(4 Marks)**

2. A Firm is facing a horizontal demand curve with $TC = Q^3 - 5Q^2 + 60\ Q + 125$,
    TC = Total Cost and Q is the quantity. Suggest at point will the firm shut down.
    (5 Marks)

3. Emirates National Plastics (ENP) production function is given by
    $Q = 6L - 0.4L^2$, Q=Number of units per lot produced per hour and L= Number of
    workers. Price per unit lot produced is AED 50 hourly wage rate paid is AED 40.
    Advice what to be the optimum number of workers employed in this case?
    (4 Marks)

4. Discuss the shape of ATC? Justify your Answer with appropriate explanation.
    (2 Marks)

5. ACME coal paid $5000 to lease a railcar from the Reading Railroad. Under the
    terms of the lease, $1000 of this payment is refundable if the railcar is returned
    within two days of signing the lease. **(5 Marks)**

    a) Upon signing the lease and paying $5000, how large are ACME's fixed costs
       and sunk costs respectively?

    b) One day after signing the lease, ACME realizes that it has no use for the
       railcar. A farmer has a bumper crop of corn and has offered to sublease the
       railcar from ACME at a price of $4500. Should ACME accept the farmer's
       offer and why?

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Second Semester 2012-2013
Test -2 (Open Book)

Course : Principles of Economics
Course No : ECON C212/ ECON F211   Weightage : 20%
Max Marks : 20   Time : 20 Minutes
                                                     Date : 21-04-2013
Year :II & IV   **Marking and Answering Shceme**

Note : Answer all questions with enough explanation and examples wherever required.

1. You are a manager of a Watch producing company facing the total cost given by $TC = 500 + 20\ Q^2$ and Price $P = 400 - 20Q$

   a) Here you are supposed to take it as monopolistic firm or perect competitive firm and calculate MC = MR or P=MC.

   b) $500.

2. A Firm is facing a horizontal demand curve with $TC = Q^3 - 5Q^2 + 60\ Q + 125$, TC = Total Cost and Q is the quantity. Suggest at point will the firm shut down. look at the related of P is less than or equal to AVC then Apply calculus and identify the point of Q = 2.5 points and substitute in Price equation and get as $57. If price falls below this then company needs to shut down.

3. Emirates National Plastics (ENP) production function is given by $Q = 6L - 0.4L^2$, Q=Number of units produced per hour and L= Number of workers. Price per unit produced is AED 50 hourly wage rate paid is AED 45.
   The condition to be satisfied is MR.MPL =Wage rate which comes **near to 7th Worker.**

4. Discuss the shape of ATC ? Justify your Answer with appropriate explanation.
   The Shape of ATC is U student need to give details and reasons where the curve changes it shape.

5. a) Fixed cost are 4000, 5000 as sunk cost if doesn't return.

   b) ACME should accept the offer of subleasing to farmer as the loss will be only $500 otherwise it will be a total loss of $5000.

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BITS Pilani
Dubai Campus

Second Semester 2012-2013
TEST -I (CB)

Course: Principles of Economics
Course No. ECON C212/ECON F 211
Max marks: 25
Date: 03-03-2013
Year: II & IV

Weightage: 25%
Time: 50 Minutes

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1. The Mc Night company is a major producer of steel. Management estimates that the demand for the company's steel is given by the equation

   $Q_s = 5000 - 1000\ P_s + 0.1I + 100 P_A$

   Where Q_s is steel demand in thousands of tons per year, P_s is the price of steel in dollars per pound, I is income per capita and P_A is the price of aluminum in dollars per pound. Initially, the price of steel is $1 per pound, income per capita is $20,000, and the price of aluminum is $0.80 per pound.
   a) How much steel will be demanded at the initial prices and income?
   b) Determine what effect will the price increase of steel have on total revenue?
   c) Evaluate the probable impact on steel if the price of aluminum is increased.
   d) If the objective is to maintain the quantity of steel demanded as computed in part (a), what reduction in steel prices will be necessary to compensate for a $0.20 reduction in the price of aluminum?   [6]

2. Suppose that the generalized demand function for good X is

   $Q_D = 60 - 2P_x + 0.01M + 7P_R$

   where Q_D = quantity of X demanded
          P_x = price of X
          M = (average) consumer income
          P_R = price of a related good R
   Suppose that M = $40,000 and P_R = $20
   a) Is good X normal or inferior?
   b) Are goods X and R substitutes or complements?
   c) Suppose the supply function is $Q_S = -600 + 10P_X$, determine equilibrium price and quantity.
   d) What happens to equilibrium price and quantity if other things remaining the same, income increases to $ 52,000?   [6]

1

3. A survey indicated that chocolate is Americans' favorite ice cream flavor. For each of the following, indicate the possible effects on demand, supply, or both as well as equilibrium price and quantity of chocolate ice cream.
a. A severe drought in the Midwest causes dairy farmers to reduce the number of milk-producing cattle in their herds by one- third. These dairy farmers supply cream that is used to manufacture chocolate ice cream.
b. A new report by the American Medical Association reveals that chocolate does, in fact, have significant health benefits.
c. The discovery of cheaper synthetic vanilla flavoring lowers the price of vanilla ice cream.
d. New technology for mixing and freezing ice cream lowers manufacturers' costs of producing chocolate ice cream. [6]

4. Differentiate between :
a) Movement along supply curve and Shift of Supply curve. Show graphically as well.
b) Normal Good and Inferior Good
c) Positive Economics and Normative Economics   [3 + 2+2]

BITS Pilani
Dubai Campus

Second Semester 2012-2013
TEST -I (CB)

Course: Principles of Economics
Course No. ECON C212/ECON F 211
Max marks: 25   **Weightage: 25%**
Date: 03-03-2013   **Time: 50 Minutes**
Year: II & IV

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① a) $Q_s = 6080$ tons   [1]

b) $E_p = (-1000) \cdot \dfrac{1}{6080} = -0.1645$

$\Rightarrow$ ~~Inelastic~~ Inelastic demand   [2]

$\Rightarrow$ $\% \Delta P > \% \Delta Q$

$\Rightarrow$ TR $\uparrow$

c) $E_c = (100) \cdot \dfrac{(0.8)}{1} = 80 = +ve$

$\Rightarrow$ Substitutes $\Rightarrow$ demand for steel $\uparrow$ [1]

d) $6080 = 5000 - 1000 P_s + (0.1)(20000)$
$\qquad\qquad + 100(0.6)$

$6080 = 7060 - 1000 P_s$

$P_s = \$0.98$

$\Rightarrow P_s$ to be reduced by $\$02$ [2]

2) a) Normal [1]

   b) Substitutes as slope of P_R is +ve [1]

   c) $Q_S = -600 + 10P_x$ — ①

   $Q_D = 60 - 2P_x + 400 + 140$

   $Q_D = 600 - 2P_x$ — ②

   For equil.

   $-600 + pP_x = 600 - 2P_x$

   $12P_x = 1200$

   $P_x = \$100$.

   $Q_S = -600 + 1000$

   $Q_S = 400$ units $= Q_D$. [2]

   d) $Q_D = 720 - 2P_x$

   Equi. $720 - 2P_x = -600 + 10P_x$

   $1320 = 12 P_x$

   $P_x = \$110$

   $Q_S = Q_D = 500$ units [2]

3.

   a. leftward shift of the supply curve, producers reduce the quantity of chocolate ice cream leads to a rise in the equilibrium price and a fall in the equilibrium quantity.

   b. Consumers will now demand more chocolate ice cream at any given price, represented by a rightward shift of the demand curve. As a result, both equilibrium price and quantity rise.

   c. The price of a substitute (vanilla ice cream) has fallen, leading consumers to substitute it for chocolate ice cream. The demand for chocolate ice cream decreases, represented by a leftward shift of the demand curve. Both equilibrium price and quantity fall.

   d. cost of producing ice cream falls, manufacturers are willing to supply more units of chocolate ice cream at any given price. This is represented by a rightward shift of the supply curve and results in a fall in the equilibrium price and a rise in the equilibrium quantity.

4. Differentiate between :

a) Student need to give a graph and write regarding the factors affecting the movement along the supply curve and shift of the supply curve.

b) student needs to give how Income plays an important role for the consumption of these goods.

c) explain as the method of economics how it differs with focus.

1 . 5 – graph.
1 . 5 – expla.

NAME:

Id Number:

Component	Quiz – 2 (Closed Book)	Date	09.05.2013
Maximum Marks	7 {weight 7%}	Duration	20 minutes

Instructions: *Answer the following questions in not more than 5 words.*

1. In which category of money supply the savings accounts are taken into account

2. One of the important macroeconomic measure in which income earned by the citizens of India in the United Arab Emirates is taken into account by the Government of India to Calculate

3.. Pricing strategy applied when the seller starts by setting a high price on the launch of the product and later lowers as it penetrates

4. Macroeconomic policy adapted by the Government to influence the spending behavior of the household for economic development.

5. What is the measure for the degree of inequality of income?

6. Taxation is not the only solution for redistribution of income. State True and False

7. Consumers are segregated into different markets and charged different prices based on age, income etc in this type of pricing strategy.

8. Which theory focuses on private bargains as an effective solution rather than Government involvement for the social benefits.

9. In a day of 24 hours which Pricing strategy is according to the variation in demand?

10. Name the curve which represents household and the percentage of income to measure the distribution of income

11. Which theory states that optimal combination of public goods is produced when local land/housing prices and taxes come to reflect consumer preferences just as they do in the market for private goods.

12. Research and Development activities set up by KHDA authorities in Dubai International Academic City have an impact on the Universities in this area can be well explained by this economic term.

13. The residents of UAE are enjoy the RTA and metro facilities whether we pay for the set up or usually unwilling to pay for it is called as

14. Value of Commodity depends upon only the amount of labor required to produce it Labor theory of Value were his words:

NAME:

Id Number:

Component	Quiz – 2 (Closed Book)	Date	09.05.2013
Maximum Marks	7 {weight 7%}	Duration	20 minutes

Instructions: *Answer the following questions in not more than 5 words.*

1. In which category of money supply the savings accounts are taken into account

M2

2. One of the important macroeconomic measure in which income earned by the citizens of India in the United Arab Emirates is taken into account by the Government of India to Calculate

GNP

3.. Pricing strategy applied when the seller starts by setting a high price on the launch of the product and later lowers as it penetrates

SKIMMING

4. Macroeconomic policy adapted by the Government to influence the spending behavior of the household for economic development.

FISCAL POLICY

5. What is the measure for the degree of inequality of income?

GINI Coefficient

6. Taxation is not the only solution for redistribution of income. State True and False

TRUE

7. Consumers are segregated into different markets and charged different prices based on age, income etc in this type of pricing strategy.

Third Degree

8. Which theory focuses on private bargains as an effective solution rather than Government involvement for the social benefits.

COARSE THEOREM

9. In a day of 24 hours which Pricing strategy is according to the variation in demand?

PEAK LOADING

10. Name the curve which represents household and the percentage of income to measure the distribution of income

LORENZ CURVE

11. Which theory states that optimal combination of public goods is produced when local land/housing prices and taxes come to reflect consumer preferences just as they do in the market for private goods.

TIEABOUT HYPOTHESIS

12. Research and Development activities set up by KHDA authorities in Dubai International Academic City have an impact on the Universities in this area can be well explained by this economic term.

EXTENALITY

13. The residents of UAE are enjoy the RTA and metro facilities whether we pay for the set up or usually unwilling to pay for it is called as

FREE RIDER PROBLEM

14. Value of Commodity depends upon only the amount of labor required to produce it Labor theory of Value were his words:

KARL MARX

BITS Pilani
Dubai Campus

Second Semester 2012-2013
Quiz -1 (Closed Book)

Course : Principles of Economics
Course No : ECON C212/ ECON F211   Weightage : 8%
Max Marks : 8   Time : 20 Minutes
                                                     Date : 28-03-2013
Year :II & IV   No of Pages:1

Answer all questions :

1. What happens to the marginal utility when total utility increases . Choose the correct option.(   )

 (a) negative and increasing, (b) negative and declining,

(c) goes to zero, or (d) positive and declining.

  Ans. (d)

2. A consumer who is below the personal budget line refers to a condition where he is (   )

 (a) is not spending all personal income, (b) is spending all personal income, (c) may or may not be spending all personal income, or (d) is in equilibrium **Ans. a)**

3. When the TP (Total Productivity) falls, one of the condition from given below is true (   )

(a) the APLabor is negative (b) the MPLabor is zero

(c) the APLabor is zero (d) the APLabor isdeclining.

Ans. (c)

4. 6. State whether following represent what type of returns to scale are exhibited here .
a)

$$q = L^{\frac{1}{2}}K^{\frac{1}{2}}$$
-----------Constant Returns to scle-----------------------

b) $q = 3LK^2$ Increasing returns to scale

5. According to substitution effect when the price of a product increases, you consume less of it & more of the other product that are relatively cheaper.

According to ___Income effect_____effect when the price of a product decreases, you consume more of the same product due increase in the purchasing power.

6. In moving from point C to point D on indifference curve I in the given Fig the individual gives up **5 units** of Y in exchange for one additional unit of X. What is this known as ____MRS.____. Thus, the MRSxy ¼ 5. Similarly, from point D to point F on indifference curve I, the MRSxy ¼ 2. On moving down the indifference curve, the individual is willing to give up less and less of Y in order to gain.
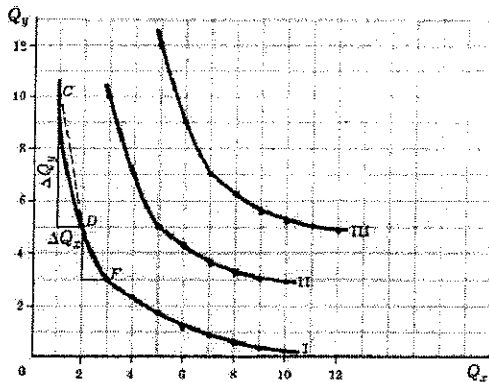
7. What is the ideal combination of rides and games from the following details when the unit price $2 and $1 respectively.

Quantity of Rides	Quantity of Games	Marginal Utility Rides	Marginal Utility Games
1	28	50	10
2	26	42	14
3	24	36	18
4	22	26	26

Quantity		Marginal Utility		Marginal Utility per Dollar	
Rides	Games	Rides	Games	Rides: Price = $2	Games: Price = $1
1	28	50	10	25	10
2	26	42	14	21	14
3	24	36	18	18	18
4	22	26	26	13	26

Utility is maximized with 3 rides and 24 games, with common marginal utility per dollar of 18 utils.