KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY
DEEMED TO BE UNIVERSITY, BHUBANESWAR – 24
(Decld. U/S 3 of UGC Act, 1956)
OFFICE OF THE CONTROLLER OF EXAMINATIONS

Sample Question Format

KIIT Deemed to be University
Online Mid Semester Examination(Spring Semester-2021)

Subject Name & Code: Engineering Economics HS 2002 **Applicable to Courses:** Mech and ETC (concerned branches)

Full Marks=20 **Time:1 Hour**

SECTION-A(Answer All Questions. All questions carry 2 Marks)
Time:20 Minutes **(5×2=10 Marks)**

Question No	Question Type(MCQ/ SAT)	Question	CO Mapping	KEY
Q.No:1(a)	MCQ	Cross price elasticity between Reynolds pens and Cello pens would be A. Positive B. Negative C. Zero D.None of the above	CO2	A
	MCQ	Market studies indicate that price elasticity of demand for Air Conditioner for slum dwellers in Mumbai market is -1.5. If there is a 7.5% increase in the Air Conditioner price, this would result in A. A decrease in demand by 11.25% B. An increase in demand by 11.25% C.A decrease in demand by 7.5% D. A decrease in demand by 9%	CO1	A
	MCQ	Last month your income was $50000 and you bought 3 pairs of designer Jeans. This month your income increased by 20% and you bought 5 designer Jeans for your brother. Keeping all other factors constant which of the following statement is correct regarding your income elasticity of demand and designer Jeans? A. Income elasticity of demand is +3.33 and designer Jeans are normal goods. B. Income elasticity of demand is 0.3 and designer Jeans are normal goods. C. Income elasticity of demand is -3.33 and designer Jeans are inferior goods. D. None of the above	CO2	A
	MCQ	Consider the demand curve D=100-3P. If you calculate the price elasticity at P=5, it would be A. -0.1764 and more elastic B. -0.1764 and less elastic C. -0.1674 and less elastic D. None of the above	CO2	B
Q.No:1(	MCQ	When price is below equilibrium level, there will	CO1 AND	B

b)		be A. Surplus of commodity in the market B.Shoratge of commodity in the market. C. Shift in supply curve. D. Shift in demand curve	CO 2	
	MCQ	Ten rupees is the equilibrium price for good X. If government fixes price at Rs. 5, there is: A. Shortage B.Surplus C.Excess supply D. Loss	CO1 AND CO 2	A
	MCQ	A decrease in demand causes the equilibrium price to: A.Rise B. Fall C. Remain constant D.Indeterminant	CO1 AND CO 2	B
	MCQ	Price of a product is determined in a free market: A. By demand of the product B. By Supply of the product C. By both demand and supply D. By the government	CO1 AND CO 2	C
Q.No:1(c)	**MCQ**	How does TR change with output when MR is negative? A. TR falls with the increase in output B. TR rise with the increase in output C. TR falls with the decrease in output D. None of these.	CO1 and CO2	A
	MCQ	Assume that when price is Rs.20, the quantity demanded is 15 units and when price is Rs.18, the quantity demanded is 16 units. Based on this information what is the marginal revenue resulting from an increase in output from 15 units to 16 units? A. Rs. 18 B. Rs.16 C. Rs.12 D. Rs. 28	CO2 and CO 3	C
	MCQ	When increase in the price of one good causes an increase in demand for the other, the goods are: Substitutes Complementary inferior Giffen	CO 1	A
	MCQ	If the income and consumption of a good X is related positively then : A. X is a normal good. B. X is an inferior good. C. X is a Giffen good. D. Any of the above	CO 2	A

Q.No:1(d)	**MCQ**	Law of demand refers to: [A] Need of the goods and services [B] Desire for a goods and services [C] Quantity of a goods and services demanded at a particular time at a particular price [D] Amount of goods and services demanded	CO2,CO3	C
	MCQ	Which 0f the following statement is true in case of demand theory: [A] It is relationship between Income and price of commodity [B] Assumes Income of customer should not change. [C] Assumes Price of the commodity should not change [D] It is relationship between Income and Quantity demanded	CO2,CO3	B
	MCQ	When supply falls, the supply curve will [A] Moves Left [B] Moves Right [C] Moves up [D] Moves down	CO2,CO3	A
	MCQ	In case of normal supply curve we take ___in vertical axis and ---- in horizontal axis. [A] Price of X , Quantity of Y [B] Price of X , Quantity of X [C] Income of Y , Quantity of Y [D] Price of Y, Quantity of X	CO2,CO3	B
Q.No:1(e)	**MCQ**	How much will be the mature value of Rs 15000 invested each year for 5 years at 8% rate of interest(nearest approximately)? A. 65000 B. 88000 C. 79000 D. 91000	CO4	B
	MCQ	How much should be charged each year at 7% rate of interest to recover a capital of Rs 2 lakhs invested now for 6 years(nearest approximately)? A. 41942 B.35430 C. 48080 D.39190	CO4	A
	MCQ	If Rs 7 lakhs has to be generated after 5 years at 6% rate of interest, how much should you deposit each year(nearest approximately)? A. 1,50,780 B.1,45,060 C. 1,24,177 D. 2,00,2200	CO4	C
	MCQ	If you are to receive Rs 1 lakh each year for 10 years in a scheme, what should be your maximum investment now at 6% per annum rate of interest(nearest approximately)? A. 812322	CO4	B

		B. 736313 C. 791122 D. 854344		

SECTION-B(Answer Any One Question. Each Question carries 10 Marks)

Time: 30 Minutes **(1×10=10 Marks)**

<table>
<tr><th>Question No. (Question Bank)</th><th>Question</th><th>CO Mapping</th></tr>
<tr><td>Question No:2</td><td>Given the demand and supply equation for a product as
Q = 1000-20P (Demand)
and
Q=600+20P (Supply)
Find the equilibrium price and Quantity.
If the supply equation is revised as Q=400+20P because of the imposition of a GST, will there be an increase or decrease in supply? Exibit this with the help of the supply curve.

Sudarshan deposited an equivalent amount of $30000 at the end of each year for 20 years in his savings account. Money was growing at 7 percent interest rate compounded annually. Sudarshan made an withdrawal of $50000 from this account at the end of 10 years. Calculate the rest amount that he will receive from his account at the end of 20 years.

[5+5]</td><td>CO4 and CO5</td></tr>
<tr><td>Question No:3</td><td>Three alternative bundles of two goods good-X and good-Y are given in the following table. In which case can you draw an Indifference curve. Also define the 'budget line' and Marginal Rate of substitution X for Y (MRS_{XY})

<table>
<tr><td>Combinations</td><td colspan="2">Bundle 1</td><td colspan="2">Bundle 2</td><td colspan="2">Bundle 3</td></tr>
<tr><td></td><td>X</td><td>Y</td><td>X</td><td>Y</td><td>X</td><td>Y</td></tr>
<tr><td>A</td><td>4</td><td>3</td><td>1</td><td>20</td><td>1</td><td>6</td></tr>
<tr><td>B</td><td>4</td><td>4</td><td>2</td><td>15</td><td>2</td><td>6</td></tr>
<tr><td>C</td><td>4</td><td>5</td><td>3</td><td>11</td><td>3</td><td>6</td></tr>
<tr><td>D</td><td>4</td><td>6</td><td>4</td><td>8</td><td>4</td><td>6</td></tr>
<tr><td>E</td><td>4</td><td>7</td><td>5</td><td>6</td><td>5</td><td>6</td></tr>
</table>

Guru made deposits in his account in the following pattern and for the following years.
<table>
<tr><td>Year</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
<tr><td>Deposit amount ($)(in thousand)</td><td>30</td><td>30</td><td>30</td><td>30</td><td>30</td><td>30</td><td>30</td><td>30</td></tr>
</table>

Money is growing at 4% interest compounded annually. Find the maturity amount of his account at the end of 10 years.</td><td>CO4 and CO5</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>Question No:4</td><td>A. What does the 'Law of Demand ' states?
Does Law of demand operates in case of Inferior goods and Giffen goods. Explain your answer.
B. Given the following information about Income(X)per month and quantity demanded (Y) , predict the Qd if the income is given as Rs. 50 thousand per month, using Least Square method of demand forecasting.
<table>
<tr><td>Month</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>Y(in units)</td><td>20</td><td>30</td><td>35</td><td>20</td><td>25</td><td>37</td><td>45</td><td>28</td></tr>
<tr><td>X(in thousand)</td><td>10</td><td>20</td><td>30</td><td>40</td><td>45</td><td>35</td><td>40</td><td>47</td></tr>
</table></td><td>CO4</td></tr>
<tr><td>Question No:5</td><td>[A] Differentiate between normal goods, inferior goods and Giffens goods [5]
[B] The price of chalk was 3 rupees a box, and I was using 10 boxes. But now the price has gone up to 3.75 a box, and I am now using 8 boxes. What is my elasticity of demand? Is my demand for chalk elastic or inelastic? What kind of good is the chalk? [5]</td><td>CO4</td></tr>
<tr><td>Question No:6</td><td>Explain in detail increase and decrease in supply with the help of diagram. Also solve the following problem.
A and B and C three suppliers sell baseball cards. A’s supply function is Q = 3P ,B's supply function is Q = -5 + 3P and C’s supply function is Q = 4P-10 . If you wanted to buy 85 cards total, how much would you have to offer per card? At what price will ‘C’ no longer sell any cards? [5]

ii) Differentiate between NNPfc and NNPmp ,Suppose the GDPmp of a particular country in a year was 1100crore.Net factor income from abroad was 100crore The value of indirect tax is 200crore and subsidy provided by Govt was 50 crore.National Income was 850 crore.Calculate aggregate value of Depreciation and GNPfc.</td><td>CO 5</td></tr>
</table>

2. (a) Q = 1000 – 20P (D)

Q = 600 + 20P (S)

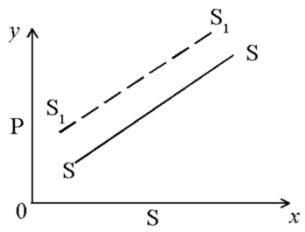
1000 – 20P = 600 + 20P

40P = 400

P = 10

Q = 800

Decrease in supply. Supply curve will shift to the left.



(b) $30000\left[\frac{(1.07)^{10}-1}{.07}\right]-50000$

= 364493.4388

$\Rightarrow 364493(1.07)^{10} + 30000\left[\frac{(1.07)^{10}-1}{.07}\right]$

=1131507.202

OR

$30000\left[\frac{(1.07)^{20}-1}{.07}\right] - 50000\,(1.07)^{10}$

= 1131507.202

3. (a)

IC can be drawn in case of bundle 2 because the MRS_{xy} in this case is decreasing
Defining
Budget line
MRS_{xy}

(b) $30000\,(1.04)^{10} + 30000\,(1.04)^{9} + 30000\,(1.04)^{8} + 30000\,(1.04)^{7} + 30000\,(1.04)^{6} + 30000\,(1.04)^{5}$ $+ 3000\,(1.04)^{4} + 30000\,(1.04)^{3} = 310942.5422$

OR

$30000\,(1.04)^{10} + 30000\left[\frac{(1.04)^{7}-1}{.04}\right]\times\left[(1.04)^{3}\right]$

= 310942.5422

Q4.A. Students will define the Law of Demand. It still operates in case of Normal goods but breaks down in case of Giffen goods.
B. a= 24.89 =25(approx.) slope=b=0.153
At X=Rs 50 thousand, Y = 25+7.65 = 32.65 units

Q5 (Answer) :
A: Students will differentiate between the normal, inferior and giffen goods.
B: % Change in Quantity = (8 - 10)/(10) = -0.20 = -20%
% Change in Price = (3.75 - 3.00)/(3.00) = 0.25 = 25%
Elasticity = |(-20%)/(25%)| = |-0.8| = 0.8

Q6 i Ans: Students will explain the increase and decrease in supply with diagram (Shift in supply curve)

Total Q= 3P+(-5 + 3P)+(4P-10)= 10p-15
Now, 10p-15= 85 so **P= 10**
And Q = 4P-10
=> 4P-10 = 0 so **P= 2.5** (at which 'C' no longer sell any cards)

ii. Students will explain difference between NNPfc and NNPmp.

GDPmp = 1100, NFIA = 100, indirect tax = 200, subsidy = 50
National Income (NNPfc) = 850

NIT =Indirect Tax - subsidy = 150
GDPmp= NNPfc+NIT-NFIA+Depreciation
Depreciation = 200
GNPfc = NNPfc + Depreciation= 850 + 200 = **1050**
