



**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**

**KIIT Deemed to be University**  
**Online Mid Semester Examination (Spring Semester-2022)**

**Subject Name & Code: HS-2002**

**Applicable to Courses: B.Tech**

**Full Marks=20**

**Time: 1 Hour**

**SECTION-A (Answer All Questions. All questions carry 2 Marks)**

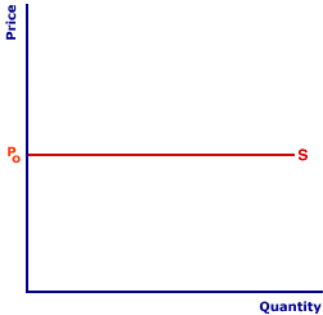
**Time: 20 Minutes**

**(5×2=10 Marks)**

<b><u>Question No</u></b>	<b><u>Question Type(MCQ/SAT)</u></b>	<b><u>Question</u></b>		<b><u>CO Mapping</u></b>
<b><u>Q.No:1(a)</u></b>		What is the balance in an account at the end of 10 years if Rs.2500 is deposited today and account earns 4% interest rate compounded quarterly? 3925.21 3336.09 3898.82 3722.16	(d)	Co 4
		How much I would have to deposit in an account today that pay 12% interest quarterly so that I have balance of Rs.20, 000 in the account at the end of 10 <sup>th</sup> year. 6622.23 6131.14 6926.05 7062.11	(b)	Co 4
		You are considering borrowing Rs 1, 00,000 for 30 years at a compound annual interest rate of 9%. The loan to be paid at the end of the each of the next 30 years. What is the annual payment that will fully amortize the loan? a) 3333.33 b) 6400.30 c) 9733.63 d) 12,333.33	(c)	Co 4
		If you are depositing Rs 25,000 in your account, how much is the maturity amount you will get after 13 year if the annual rate of interest is 14%. 137310.28 165000.12 c) 171300.31 d) 100089.62	(a)	Co 4
<b><u>Q.No:1(b)</u></b>		Which of the following explains the	(b)	<b>CO2</b>

		declining slope of indifference curve. Diminishing Marginal utility Diminishing Marginal rate of substitution between the commodities Diminishing Marginal rate of Technical substitution Ordinal measurement of utility Diminishing Marginal utility of money 1 and 4 2 and 4 3 and 4 1 and 5		
		In case of consumer's equilibrium to be explained through an ordinal approach, when there are two commodities with their prices given and with limited income of consumer, the following information is required: a) price line/budget line b) Indifference map c) Point of tangency between IC and budget line d) Equality of slopes of IC and budget line  Arrange the information required in the correct sequence and choose the right option from below. B-d-a-c B-a-d-c A-d-b-c A-b-c-d	(b)	CO <sub>2</sub>
		Which of the following is not a basic property of Indifference curve Indifference curve have a negative slope Indifference curve of imperfect substitute are concave to the origin Indifference curve do not intersect nor are they tangent to one another Upper indifference curve indicate higher level of satisfaction	(b)	CO <sub>2</sub>
		If two goods are perfect complements to each other, then indifference curves are Right angled Left angled Convex to origin Downward sloping	(a)	CO <sub>2</sub>
<b>Q.No:1(c)</b>		A particular brand of tooth paste has many number of substitutes available in the market. If you are to comment on the price elasticity of demand (e) of this tooth paste you	(a)	CO <sub>3</sub>

		would say e is greater than 1 e is less than 1 e is neither greater than 1 nor less than 1 None of these		
		When a GST of Rs.90 per unit is imposed on a product it is observed that Rs.60 is borne by the consumer and the rest is borne by the seller. So we can say The consumer is more elastic The consumer is less elastic The seller is less elastic None of these	(b)	CO3
		Power cost is fixed at Rs.250 at the market equilibrium point in December, 2021. In January, 2022 because of rising cost of fuel and materials the demand curve for power cost shifts to the right, as a result The equilibrium price will decrease The equilibrium price will increase The equilibrium price will remain unchanged None of these	(b)	CO3
		As per the indifference curve and price line, a consumer will not be in equilibrium when Ratio of MU and price of respective goods are equal. Ratio of MU of two goods is equal to the ratio of their respective prices MRS is equal to the ratio of the price of two goods MRS is decreasing	(a)	CO3
<b>Q.No:1(d)</b>		GNP <sub>fc</sub> =..... GNP <sub>mp</sub> -Depreciation-NFIA GDP <sub>mp</sub> -NIT+NFIA GNP <sub>mp</sub> -Depreciation-NIT GDP <sub>mp</sub> -Depreciation-NIT	(b)	CO 3
		NDP <sub>fc</sub> =..... a)GNP <sub>mp</sub> -Depreciation-NFIA b) GDP <sub>mp</sub> -NIT+NFIA c) GNP <sub>mp</sub> -Depreciation-NIT d) GDP <sub>mp</sub> -Depreciation-NIT	(a)	CO 3
		NNP <sub>fc</sub> =..... GNP <sub>mp</sub> -Depreciation-NFIA GDP <sub>mp</sub> -NIT+NFIA GNP <sub>mp</sub> -Depreciation-NIT GDP <sub>mp</sub> -Depreciation-NIT	(c)	CO 3
		GDP <sub>mp</sub> =..... NDP <sub>fc</sub> +Depreciation+NIT GNP <sub>fc</sub> +NFIA-NIT GNP <sub>fc</sub> +Depreciation-NIT d)NDP <sub>fc</sub> +NFIA+NIT	(a)	CO 3
<b>Q.No:1(e)</b>		Arrange the following products in	(b)	CO4

		<p>decreasing order of price elasticities.</p> <p>Homogeneous product</p> <p>Differentiated products</p> <p>Necessary products</p> <p>Durable products</p> <p>a,b,c,d</p> <p>d,c,b,a</p> <p>b,c,a,d</p> <p>c,a,b,d</p>		
		<p>The following are the two statements regarding elasticity of demand and its measurement</p> <p>On every point on the straight line demand curve, the point elasticities are all equal</p> <p>On every point on the rectangular hyperbola shaped demand curve, the point elasticities are not equal.</p> <p>Select the correct option for those below:</p> <p>Both the statements are correct.</p> <p>Both the statements are incorrect</p> <p>Statement 1 is correct while statement 2 is incorrect</p> <p>Statement 1 is incorrect while statement 2 is correct</p>	(b)	CO4
		<p>The given the demand curve has</p>  <p>Infinite slope and zero elasticity</p> <p>Zero slope and infinite elasticity</p> <p>Zero slope and unit elasticity</p> <p>Zero slope and zero elasticity</p>	(b)	CO4
		<p>The rise in income of developed countries lead to demand curve to shift</p> <p>Right</p> <p>Down</p> <p>Up</p> <p>Left</p>	(a)	CO4

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

**Time: 30 Minutes**

**(1×10=10 Marks)**

<b>Question No. (Question Bank)</b>	<b><u>Question</u></b>	<b><u>CO Mapping</u></b>
<b>Question No:2</b>	<p>Suppose that someone wants to be able to withdraw Rs.30000 at the end of 4 years and withdraw Rs.40000 at the end of 8 years, leaving a total sum of zero in their bank account after the last withdrawal. If they earn 3% on their balances, how much must they deposit today to satisfy their withdrawal needs?</p> <p>“Law of diminishing marginal utility will operate even if consumption takes place in intervals.” Defend or refute by citing an instance suitable for the explanation.</p>	CO 4 & CO 5
<b>Question No:3</b>	<p>You want to buy an ordinary annuity that will pay you Rs.40000 a year for the next 20 years. You expect annual interest rates will be 8 percent over that time period. Find the maximum price you would be willing to invest now for this scheme. If you have to invest Rs.420000 for this scheme, would you go for it? Explain in terms of your gain or loss.</p> <p>A firm faces the following demand function  <math>P = 500 - 0.5Q</math>  Find the value of Price and Quantity when the price elasticity on the demand curve is 1.  Find the value of Marginal Revenue (MR) when Total Revenue (TR) is maximum.  What is the value of price elasticity when MR is positive and negative?</p>	CO 4 & CO 5
<b>Question No:4</b>	<p>A person plans to deposit 100000 in the first year in his savings account. He reduces his deposit amount by 2000 thereafter for next 12 years. The bank gives 7.5% interest compounded annually. Find the maturity value of the deposit.</p> <p>Given the market demand and supply curve of a product  <math>Q = 10000 - P</math> (Demand)  <math>Q = 9000 + 4P</math> (Supply)  Find the equilibrium price and quantity</p> <p>If a GST of 20 per unit is imposed on the product find its effect on the equilibrium price. Is the buyer less elastic? Why?</p> <p>Draw a suitable diagram to demonstrate the effect of the GST on the price of the product.</p>	CO3 & CO5
<b>Question No:5</b>	<p>If Rs.50000 is deposited in a savings account at present for 15 years and the account draws interest at 8% per year compounded annually, find the value of the account at the end of 15 years. If the same amount is to be generated as annual deposits, how much has to be that yearly deposit?</p> <p>The demand function for sanitizers has been estimated as  <math>Q = 900 - 2P + 0.08Y</math>  where  Q = demand, P = price per unit, Y = per capita income  Find the price elasticity and income elasticity of demand when P = 50 and Y = 10000</p> <p>If the sanitizer seller wants to increase the Total Revenue, what</p>	CO4 & CO5

	<p>advice you will give him on the basis of the price elasticity value.</p> <p>If this sanitizer is not an inferior good how the sales of the sanitizer would change when income rises.</p>																																	
<b>Question No:6</b>	<p>Forecast and compare the sales of automatic cars and manual cars for year 2025 and 2030 on the basis of given data and decide which car can incur greater business collectively at the end of 2030.</p> <table><tr><th>Sl.No.</th><th>Years</th><th>Sales of Automatic car (in thousands)</th><th>Sales of Manual Car (in thousands)</th></tr><tr><td>1</td><td>2000</td><td>55000</td><td>75000</td></tr><tr><td>2</td><td>2004</td><td>78000</td><td>85000</td></tr><tr><td>3</td><td>2008</td><td>88000</td><td>99000</td></tr><tr><td>4</td><td>2012</td><td>95000</td><td>110000</td></tr><tr><td>5</td><td>2016</td><td>110000</td><td>115000</td></tr><tr><td>6</td><td>2020</td><td>200000</td><td>150000</td></tr><tr><td>7</td><td>2024</td><td>250000</td><td>180000</td></tr></table> <p>What happens to the budget line if both the prices as well as the income double? Draw the conclusion by giving a numerical example.</p>	Sl.No.	Years	Sales of Automatic car (in thousands)	Sales of Manual Car (in thousands)	1	2000	55000	75000	2	2004	78000	85000	3	2008	88000	99000	4	2012	95000	110000	5	2016	110000	115000	6	2020	200000	150000	7	2024	250000	180000	<b>CO3 &amp; CO4</b>
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