

## XI ECONOMICS EQUILIBRIUM ASSIGNMENT

1. Define utility. [Foreign 2014, 2015]
2. Define total utility.
3. How much is total utility at zero level of consumption?
4. How is total utility derived from marginal utility?
5. Define marginal utility. [Delhi 2014C]
6. What happens to marginal utility, when the total utility is maximum?
7. "TU remains the same, whether MU is positive or negative". Defend or refute.
8. What changes will take place in TU, when : (i) MU curve remains above the X-axis; (ii) MU curve touches the X-axis; (iii) MU curve lies below the X-axis.
9. Why does TU increases at a diminishing rate due to continuous increase in consumption?
10. If one burger gives you satisfaction of 15 utils and 2 burgers generate total satisfaction of 25 utils, then calculate the marginal utility of second burger.
11. What is law of diminishing marginal utility. [Foreign 2014]
12. What are assumptions of diminishing law of marginal utility ?
13. What is meant by MU of one rupee?
14. How many ice-creams will a consumer have, if ice-cream is available free of cost?
15. "Law of diminishing marginal utility will operate even if consumption takes place in intervals." Defend or refute.
16. In the study of consumer behaviour, we study decision making by a consumer with respect to :
  - a. Spending of income
  - b. Adjusting purchases due to change in price
  - c. Both (a) and (b)
  - d. Neither (a) nor (b)
17. A rational consumer is called 'rational' because he/she aims at :
  - a. Maximizing purchases
  - b. Minimizing expenditure
  - c. Maximizing utility
  - d. Minimizing wastage
18. On consuming some units of a good, the utility obtained is 10 utils. It is an example of :
  - a. Ordinal utility
  - b. Cardinal utility
  - c. Marginal utility
  - d. None of the above
19. There is a 'Law' in theory of consumer behaviour which states that as a consumer consumes more and more units of a good, the utility from each new unit consumed :
  - a. Increases
  - b. Remains constant
  - c. Decreases
  - d. Increases initially, remains constant and ultimately decreases
20. Marginal utility refers to utility :
  - a. From the last unit consumed
  - b. From one more unit consumed
  - c. From one less unit consumed
  - d. All the above
21. Marginal utility of a good means utility on consuming :
  - a. More units
  - b. Less units
  - c. One more unit
  - d. All the above
22. When a consumer increases consumption of a good from 2 units to 4 units, total utility rises from 9 utils to 14 utils. Marginal utility is :
  - a. 5 utils
  - b. 2.5 utils
  - c. 3 utils
  - d. Can't calculate

23. According to the Law of Diminishing Marginal utility, as the consumer reduces consumption of a goods, marginal utility of the remaining quantity of that good :
- a. Falls                                      b. Rises                                      c. Remains unchanged      d. Cannot calculate
24. What is meant by consumer's equilibrium? **[AI 2013C]**
25. Why is the study of consumer's equilibrium a subject matter of microeconomics? **(All India C 2011)**
26. What is the general condition of consumer's equilibrium with respect to any particular product?
27. State the conditions of consumer's equilibrium in case of two commodities.
28. A consumer consumes only two goods X and Y. At a consumption level of these two goods, he finds that the ratio of marginal utility of price in case of X is higher than a case of Y. Explain the reaction of the consumer. **[AI 2011]**
29. A consumer consumes only two goods X and Y and is in equilibrium. Price of X falls. Explain the reaction of consumer through the Utility Analysis. **[AI 2012]**
30. A consumer consumes only two goods X and Y both priced at Rs. 3 per unit. If the consumer chooses a combination of these two goods with Marginal Rate of Substitution equal to 3, is the consumer in equilibrium? Give reasons. What will a rational consumer do in this situation? Explain. **[Delhi 2015]**
31. A consumer consumes only two goods X and Y whose prices are Rs. 4 and Rs. 5 per unit respectively. If the consumer chooses a combination of the two goods with marginal utility of X equal to 5 and that of Y equal to 4, is the consumer in equilibrium? Give reasons. What will a rational consumer do in this situation? Explain. **[Delhi 2015]**
32. A consumer consumes only two goods. For the consumer to be in equilibrium, why must Marginal Rate of Substitution between the two goods must be equal to the ratio of prices of these two goods? Is it enough to ensure equilibrium?
33. State the conditions of consumer's equilibrium in the indifference Curve Analysis and explain the rationale behind these conditions. **[Foreign 2014]**
34. A consumer consumes only two goods X and Y. On planning to spend the whole of income on these two goods he find  $MU_x = 6$  utils and  $MU_y = 4$  utils.  $P_x$  and  $P_y$  are Rs. 4 and Rs. 6 per unit respectively. In this situation the consumer will :
- a. Stick to his plan                      b. Buy less of X                      c. Buy more of Y                      d. Buy more of X and less of Y
35. A consumer consumes only two goods X and Y and plans to spend entire income on these. The prices of X and Y are respectively Rs. 7 and Rs. 8 per unit respectively. In the plan marginal utilities of X and Y turn out to be 8 utils and 7 utils respectively. Suppose marginal utility in case of each good remains unchanged as more or less is consumed. In such a case consumer will :
- a. Buy only X                              b. Buy only Y                              c. Buy both X and Y in equal quantities                      d. Stick to his plan
36. Given total utility schedule of a good, how many units of the good the consumer will buy if the price per unit is Rs. 4 :

Consumption (Unit)	Total utility (Rs.)
1	3
2	5
3	6

- a. 1 unit                                      b. 2 units                                      c. 3 units                                      d. 0 unit
37. A consumer consumes only two goods X and Y with prices Rs. 4 and Rs. 5 per unit respectively. On making a plan of spending his whole of income he finds  $MU_x = 12$  utils and  $MU_y = 15$  utils. The consumer:
- a. Is in equilibrium                                      b. Is not in equilibrium nor can reach equilibrium
- c. Can reach equilibrium by buying less of X and more of Y
- d. Can reach equilibrium by buying more of X and less of Y

38. A consumer consumes only two goods X and Y and is in equilibrium with  $MU_x = MU_y$  then :  
 a.  $P_x = P_y$                                       b.  $P_x < P_y$                                       c.  $P_x > P_y$                                       d. Any of the above
39. Define an indifference curve. [Delhi 2010]
40. What is 'ordinal utility'? (CBSE, Foreign 2015)
41. Define Marginal rate of substitution.
42. Explain the concept of Marginal Rate of Substitution (MRS) by giving an example. What happens to MRS when consumer moves downwards along the indifference curve? Give reasons for your answer
43. What is meant by monotonic preferences? (CBSE, All India 2014 (III), Foreign 2015)
44. Is consumer willing to move away from consumer's equilibrium point? [AI 2003]
45. What are the assumptions and properties of indifference curve?
46. Why are indifference curves always convex to the origin?
47. Why does an indifference curve slope downwards?
48. What is the impact of diminishing marginal rate of substitution on the slope of indifference curve?
49. What does an indifference curve show? (CBSE, Foreign 2012)
50. State the conditions of consumer's equilibrium in case of indifference curve approach?
51. The Indifference Curve Analysis is different from the Utility Analysis because the IC Analysis is based on:  
 (a) Cardinal utility                                      (b) Ordinal utility  
 (c) Law of diminishing marginal utility                                      (d) Law of equi-marginal utility
52. Expressing choices in terms of first preference, second preference, third preference and so on is expression in terms of :  
 (a) Diminishing marginal utility                                      (b) Cardinal utility  
 (c) Monotonic preference                                      (d) Ordinal utility
53. An indifference schedule is based on the assumption that :  
 (a) The consumer consumes only two goods                                      (b) Preferences are ordinal  
 (c) Marginal rate of substitution is decreasing                                      (d) All the above
54. Monotonic preferences in the Indifference Curve Analysis means that :  
 (a) Total utility increases as quantity of goods with the consumer increases.  
 (b) Total utility decreases as quantity of goods with the consumer decreases.  
 (c) Both (a) and (b).                                      (d) Neither (a) nor (b)
55. As we move along an indifference curve, each point to the right shows :  
 (a) Higher utility                                      (b) Lower utility  
 (c) Same utility                                      (d) Initially higher, then same and ultimately declines.
56. An indifference curve slopes downwards from left to right because :  
 (a) Marginal rate of substitution is declining  
 (b) Consumer must give up some units of one good to obtain more units of the other good  
 (c) Both (a) and (b)                                      (d) None of the above (HOTS)
57. A typical indifference curve is downward sloping convex curve because as we move downwards along the indifference curve, the slope of the curve :  
 (a) Decreases                                      (b) Increases  
 (c) Unchanged                                      (d) Initially increases, then decreases
58. An indifference curve to the right shows higher utility because of :  
 (a) Monotonic preferences                                      (b) Cardinal preferences  
 (c) Ordinal preferences                                      (d) None of the above

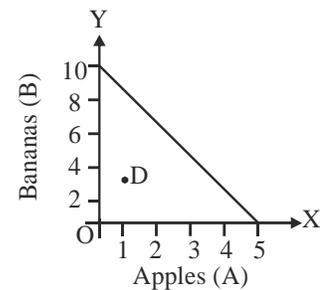
59. Define a budget line. [AI 2011]
60. Define budget set. [CBSE, 2011, 2014, CBSE 2013C]
61. Why does the budget line slope downward?
62. Why budget line is a straight line?
63. Give equation of Budget Line. (CBSE, Delhi 2015)
64. Give equation of Budget Set. (CBSE, Delhi 2015)
65. What is budget set? Explain what can lead to change in budget set. [AI 2012]
66. Define a budget line. When can it shift to the right? [AI 2012]
67. Explain the distinction between the equations of budget line and budget constraint. [AI 2011 C]
68. A consumer consumes only two goods. Why is the consumer said to be in equilibrium when he buys only that combination of the two goods which lies at that point on the Indifference curve where the budget line is tangent to the indifference curve? Explain. Use diagram.
69. What are the properties of Budget Line?
70. A consumer consumes only two goods X and Y. Let  $P_x$  and  $P_y$  be their prices and  $Q_x$  and  $Q_y$ . The quantities of these two goods respectively. Let  $m$  be the income. The budget line equation is :  
 (a)  $P_x \cdot Q_x + P_y \cdot Q_y = m$  (b)  $P_x \cdot Q_x + P_y \cdot Q_y < m$  (c)  $P_x \cdot Q_x + P_y \cdot Q_y \geq m$  (d)  $P_x \cdot Q_x + P_y \cdot Q_y \leq m$
71. Slope of a budget line is :  
 (a) Increasing throughout (b) Decreasing throughout  
 (c) Constant throughout (d) Fluctuating throughout
72. A budget line can shift if :  
 (a) Price of the good on X axis changes (b) Price of the good on Y axis changes  
 (c) Income of the consumer changes (d) Any of the above
73. In the Indifference Curve Analysis, the consumer is in equilibrium when :  
 (a) Budget line is tangent to indifference curve (b) Indifference curve is convex  
 (c) Both (a) and (b) (d) None of the above
74. When price of one or both the goods consumer consumes falls, the consumer's utility level at equilibrium in the IC analysis :  
 (a) Falls (b) Increases (c) Remains unchanged (d) Uncertain
75. Suppose prices of only two goods the consumer consumes are doubled, and at the same time income is also doubled, the consumer's utility level at equilibrium in the IC analysis :  
 (a) Falls (b) Increases (c) Remains unchanged (d) Uncertain
76. Suppose prices of one of the two goods the consumer consumes falls and that of other rises, the consumer's utility level at equilibrium in the IC analysis :  
 (a) Falls (b) Increases (c) Remains unchanged (d) Uncertain
77. A consumer consumes only two goods X and Y. Let  $P_x$  and  $P_y$  be their prices and  $Q_x$  and  $Q_y$  the quantities of these goods respectively. Let  $m$  be income. The budget constraint equation is :  
 (a)  $P_x \cdot Q_x + P_y \cdot Q_y = m$  (b)  $P_x \cdot Q_x + P_y \cdot Q_y < m$  (c)  $P_x \cdot Q_x + P_y \cdot Q_y > m$  (d) None of the above

#### MULTIPLE CHOICE QUESTIONS

1. Which of these is not a property of indifference curve?  
 a. Indifference curve slopes downwards (b) Indifference curve is concave to the origin  
 c. Two indifference curves cannot intersect each other  
 d. Higher indifference curve represents higher level of satisfaction

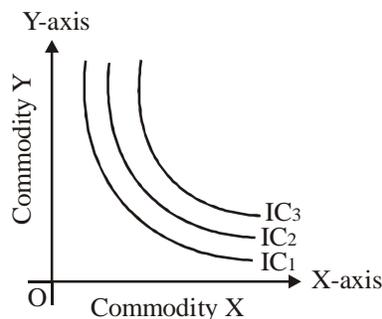
2. Indifference curves are convex to the origin because of :
- increasing MRS
  - Diminishing MRS
  - Law of Diminishing Marginal Utility
  - Law of Equi-Marginal Utility
3. The necessary condition under utility approach to attain consumer's equilibrium in case of two commodity is :
- $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$
  - $MRS_X = \frac{P_X}{P_Y}$
  - $MU_X = P_X$
  - None of these
4. When we add up utility derived from consumption of all the units of the commodities, we get :
- Total Utility
  - Initial Utility
  - Marginal Utility
  - None of these
5. Marginal Utility (MU) in terms of money is equal to :
- $\frac{\text{Marginal Utility in utils}}{\text{Marginal Utility of one rupee}}$
  - $\frac{\text{Marginal Utility of one rupee}}{\text{Marginal Utility in utils}}$
  - $\frac{\text{Marginal Utility in utils}}{\text{Price of the Commodity}}$
  - None of these
6. According to the Law of diminishing marginal utility, satisfaction obtained from consumption of each successive unit:
- Increases
  - Decreases
  - Remains same
  - Either increases or decreases
7. Indifference Map refers to :
- Highest Indifference curve
  - Lowest Indifferences curve
  - Family of Indifference curve
  - Noen of these
8. Budget set includes :
- All those combinations of two goods which a consumer already possesses
  - All those combinations of two goods which is consumer cannot afford
  - All those combinations of two goods which a consumer is willing to buy
  - All those combinations of two goods which a consumer can afford
9. Indifference curves are :
- Concave to the origin
  - Convex to the origin
  - Upward sloping straight line passing from the origin
  - None of these
10. Which of these is a condition for for consumer's equilibrium by indifference curve analysis?
- $MU_X = P_X$
  - $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$
  - $MRS_X = \frac{P_X}{P_Y}$
  - $MU_X = MU_Y$
11. If  $\frac{MU_X}{P_X} > \frac{MU_Y}{P_Y}$ , then to reach the equilibrium position, consumer should :
- Stop buying any commodity
  - Buy both the commodities in equal quantity
  - Buy more of X and less of Y
  - Buy more of Y and less of X
12. If the consumption of an additional unit of a commodity causes no change in TU, then the resultant MU is:
- Zero
  - Positive
  - Negative
  - Constant

13. An indifference curve is best described as a series of points which show :
- Combinations of two commodities which give the consumer same satisfaction
  - Combinations of two goods, such that cost of each combination is equal to money income of the consumer
  - Combinations of the two goods which a consumer can afford, given his income and prices in the market
  - None of these
14. Total Utility is \_\_\_\_\_ at the point of satiety :
- Minimum
  - Maximum
  - Zero
  - None of these
15. Marginal Utility (MU) of nth unit is calculated as :
- $MU_N = TU_N - TU_{n+1}$
  - $MU_n = TU_n + TU_{n+1}$
  - $MU_n = TU_n + TU_{n-1}$
  - $MU_n = TU_n - TU_{n-1}$
16. In case of single commodity, consumer's equilibrium is achieved when :
- $MU_X > P_X$
  - $MU_X < P_X$
  - $MU_X \neq P_X$
  - $MU_X = P_X$
17. \_\_\_\_\_ measures the slope of indifference curve.
- Budget Line
  - Marginal Rate of Substitution
  - Marginal Rate of Transformation
  - None of these
18. In the following diagram of budget line, point 'D' represents :
- Bundle which cost equal to money income of consumer
  - Bundle which cost less than money income of consumer
  - Bundle which cost greater than money income of consumer
  - None of these
19. How is TU derived from MU?
- $TU = \Sigma MU$
  - $TU = U_1 + U_2 + U_3 + \dots + U_N$
  - Both (a) and (b)
  - None of these
20. What happens to MU when TU is maximum?
- MU is negative
  - MU is zero
  - MU is decreasing
  - MU is increasing
21. An indifference curve always :
- Slopes downwards from left to right
  - Slopes upwards from left to right
  - Is parallel to the Y-axis
  - Is parallel to the X-axis
22. In case of cardinal utility approach, utility is measured in :
- Rupees
  - Ranks
  - Utils
  - None of these
23. The consumer will be in equilibrium where there is tangency between price line and indifference curve because at this point :
- $MRS < \text{Price Ratio}$
  - $MRS > \text{Price Ratio}$
  - $MRS = \text{Price Ratio}$
  - None of these
24. "Cardinality" means utility can be :
- Measured
  - Ranked
  - Not measured
  - None of these
25. The slope of price line (in case of commodities X and Y) is given by :
- Taste and preferences of consumer
  - Prices of both the commodities
  - Price of commodity X alone
  - Price of commodity Y alone
26. Which Law states that : "When a consumer consumes more and more units of a product, the utility derived from each additional unit decreases"?
- Law of Equi-Marginal Utility
  - Law of Ordinal Utility
  - Law of Cardinal Utility
  - Law of Diminishing Marginal Utility





40. Budget line shows :
- Possible combination of two goods that a consumer can buy by spending his entire income at the given prices
  - Possible combination of two goods which cost less than or equal to consumer's money income
  - Possible combination of two goods among which the consumer is indifferent
  - All of these
41.  $MU_X$  of X is 40 and  $MU_Y$  of Y is 30, if the price of Y is Rs. 9, then price of X at equilibrium will be \_\_\_\_\_.
- Rs. 9
  - Rs. 30
  - Rs. 15
  - Rs. 12
42. The farther the Indifference Curve is from the origin, then :
- Higher is the satisfaction level
  - Lower is the satisfaction level
  - Same satisfaction level will be obtained
  - Nothing can be said about satisfaction
43. The consumer is in equilibrium when Marginal Utility from a Commodity equals :
- Demand for that Commodity
  - Supply of that Commodity
  - Price of the Commodity
  - All of these
44. An Indifference Curve represents all those combinations of two goods which give :
- No satisfaction to the Consumer
  - Lower satisfaction to the Consumer
  - Higher Satisfaction to the Consumer
  - Equal satisfaction to the Consumer
45. The consumer is in equilibrium at a point where the budget line :
- Is above an indifference curve
  - Is below an indifference curve
  - Is tangent to an indifference curve?
  - Cuts an indifference curve
46. 53. Which indifference Curve represents the highest level of satisfaction?



- $IC_1$
  - $IC_2$
  - $IC_3$
  - None of these
47. If Marginal Rate of Substitution is constant throughout, the indifference curve will be : (choose the correct alternative)
- parallel to the x-axis
  - Downward sloping concave
  - Downward sloping convex
  - Downward sloping straight line
- [Delhi 2015]**
48. If Marginal Rate of Substitution is increasing throughout, the indifference Curve will be : (Choose the correct alternative)
- Downward sloping convex
  - Downward sloping concave
  - Downward sloping straight line
  - Upward sloping convex
- [AI 2015]**
49. A consumer consumes only two goods, if price of one of the goods falls, the indifference curve : (Choose the correct alternative)
- Shifts upwards
  - Shifts downwards
  - Can shift both upwards or downwards
  - Does not shift
- [Foreign 2015]**

50. A consumer consumes only two goods X and Y both priced at Rs. 4 per unit. If the consumer chooses a combination of these two goods with Marginal Rate of Substitution equal to 4, then the consumer will :
- a. Buy more units of X  
b. Buy more units of Y  
c. Buy more units of both, X and Y  
d. Buy less units of both, X and Y

#### TRUE / FALSE

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1. Utility is directly linked with the usefulness of a commodity.
2. Any consumption beyond the point of satiety leads to disutility.
3. Different points on an indifference curve represent different satisfaction levels.
4. An indifference curve is convex to the origin because of the law of diminishing marginal rate of substitution.
5. Marginal rate of substitution indicates the slope of budget line.
6. When we add up utility derived from each successive unit, we get total utility.
7. All points below the budget line show the various possible bundles which cost exactly equal to consumer's money income.
8. Marginal rate of substitution remains same along the indifference curve.
9. The bundles of budget set lie either on or below the budget line.
10. Two indifference curves intersect each other when they represent same level of satisfaction.
11. The law of diminishing marginal utility states that a rise in price of a product results in decline in its marginal utility.
12. Total utility is minimum when marginal utility is zero.
13. The slope of indifference curve is different at different points of the curve.
14. Only one indifference curve will pass through a given point on an indifference map.
15. When the marginal utility starts falling, total utility also start decreasing.
16. If  $\frac{MU_X}{P_X} > \frac{MU_Y}{P_Y}$ , then the consumer should buy more of commodity Y and less of commodity X to reach the equilibrium position.
17. Marginal utility can never be negative.
18. A budget set is the collection of all bundles of goods that consumer wants to buy.
19. A budget set is a collection of such bundles of goods that give same satisfaction.

#### NUMERICAL QUESTIONS

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1. Starting from an initial situation of consumer's equilibrium, suppose the marginal utility of a rupee increases, will it increase or decrease the quantity demanded of the product?
2. A consumer gets 50 units of utility from the consumption of 1st unit commodity X. On the assumption that for every additional unit of X, he loses 10 unit of utility, how much unit(s) of X will be consume if, it was available to him at price of Rs. 5 per units, and his marginal utility of money = 10.
3. A consumer has an income of Rs 200 per day. Price of X and Y is Rs 2 and Rs 5 respectively. Plot the budget line of the consumer.

4. Suppose, price of commodity Y ( $P_Y$ ) is Rs. 10 per unit. Also assume that marginal utility of money ( $MU_M$ ) is 8 (and constant). Using the following marginal utility schedule of the consumer, find out equilibrium level of consumption and total expenditure on commodity-Y.
5. Given the consumer is in equilibrium. The marginal utility from last unit consumed of commodity X is Rs. 45 and price of commodity X is Rs. 9. Calculate the marginal utility of money. (Assuming marginal utility of money for the consumer is constant in equilibrium).
6. Assuming price of commodity X ( $P_X$ ) being Rs. 5 per unit and that of commodity-Y ( $P_Y$ ) equal to Rs. 8 per unit. Individual A consumes both of these commodities. Calculate the equilibrium level of consumption of commodity X and commodity-Y, individual-A has income of Rs. 102 and marginal utility of money ( $MU_M$ ) to him is 10 units.
7. An individual has allocated income so as to maximize total utility and has a marginal utility of coffee per cup that is twice that of tea but a quarter of that of a pizza. If Pizza is Rs. 60, how much is coffee and tea per cup?
8. The following schedule gives the number of bananas consumed and the total utility derived of each level of consumption by a consumer. Give that the price of bananas is fixed at Rs. 2 per bananas, determine the optimal level of consumption :

<b>No. of Bananas</b>	1	2	3	4	5	6	7	8
<b>Total Utility</b>	5	9.5	13.5	17	20	22.5	24.5	26

9. A consumer has Rs. 24 with him which he wants to spend it on two goods X and Y. The price of each unit of X and Y is Rs. 2 and Rs. 3. Marginal utility schedule of X and Y is given as :

<b>Units</b>	1	2	3	4	5	6
<b>MU<sub>x</sub></b>	20	18	16	14	12	10
<b>MU<sub>y</sub></b>	24	21	18	15	12	9

How many units of X and Y goods are purchased by the consumer so that his utility is maximum?

10. Given  $P_X = \text{Rs. } 5$  and  $P_Y = \text{Rs. } 10$ , find consumer's equilibrium from the following  $MU_X$  and  $MU_Y$  value.

<b>TU<sub>x</sub></b>	100	180	240	290
<b>TU<sub>y</sub></b>	160	310	430	540

11.
  - a. Given  $P_X = \text{Rs. } 2$ , and  $P_Y = \text{Rs. } 1$ , income = Rs. 12. Find how a consumer spends her income in order to maximise total utility.
  - b. Calculate total utility received by the consumer. Show that equilibrium conditions for the consumer are satisfied.

<b>Q</b>	1	2	3	4	5	6	7	8
<b>MU<sub>x</sub></b>	16	14	12	10	8	6	4	2
<b>MU<sub>y</sub></b>	11	10	9	8	7	6	5	4