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UGC-NET

ECONOMICS

National Testing Agency (NTA)

PAPER – 2 || VOLUME – 1

SIERRA INNOVATIONS

UGC NET PAPER – 2 (ECONOMICS)

UNIT I

Micro Economics

Theory of Consumer Behaviour

1. Meaning of Consumer Behavior

Consumer behavior is the study of how individuals, groups, or organizations select, purchase, use, and dispose of goods and services to satisfy their needs and wants.

Definitions:

- Philip Kotler:
  - "Consumer behavior is the study of how individuals buy, use, and dispose of goods, services, ideas or experiences to satisfy their needs."
- Leon Schiffman:
  - "Consumer behavior focuses on how consumers make decisions to spend their available resources."

2. Nature of Consumer Behavior

1. Dynamic – Changes with time, trends, technology.
2. Complex – Influenced by multiple internal and external factors.
3. Interdisciplinary – Involves psychology, sociology, economics.
4. Goal-Oriented – Consumers act to satisfy needs.
5. Process-Oriented – Includes pre-purchase, purchase, and post-purchase stages.

3. Scope of Consumer Behavior

- Buyer decision-making process
- Factors influencing behavior
- Consumer satisfaction and post-purchase behavior
- Market segmentation and targeting
- Consumer rights and protection

4. Theories of Consumer Behavior

(A) Economic Theory

Developed by: Alfred Marshall

Assumptions:

- Consumer is rational
- Objective is utility maximization
- Income is limited
- Prices influence demand

Key Points:

- Law of Diminishing Marginal Utility
- Price effect, income effect, substitution effect
- Consumers allocate income to maximize satisfaction

Criticism:

- Ignores psychological factors
- Assumes perfect rationality (unrealistic)

(B) Psychological Theory

Focus:

Consumer behavior is influenced by internal mental processes.

Key Elements:

1. Motivation
    - Based on needs (biological/psychological)
2. Perception
    - How consumers interpret information
3. Learning
    - Behavior changes through experience
4. Attitudes & Beliefs
    - Shape buying decisions

Important Theory:

- Abraham Maslow's Need Hierarchy Theory

Levels:

1. Physiological Needs
2. Safety Needs
3. Social Needs
4. Esteem Needs
5. Self-Actualization

(C) Sociological Theory

Focus:

Consumer behavior is influenced by society and groups.

Key Factors:

1. Family
2. Reference groups
3. Social class
4. Culture & subculture

Implication:

- Consumers do not act independently; social environment plays a crucial role.

(D) Psychoanalytic Theory

Developed by: Sigmund Freud

Core Idea:

Consumer behaviour is driven by unconscious motives.

Structure of Personality:

1. Id – Instincts, desires
2. Ego – Rational thinking
3. Superego – Moral values

Application:

- Emotional branding
- Luxury and symbolic consumption

(E) Learning Theory (Behavioural Theory)

Key Idea:

Consumer behaviour is learned through experience.

Components:

1. Stimulus – External cue
2. Response – Reaction
3. Reinforcement – Strengthens behaviour

Types:

- Classical Conditioning
- Operant Conditioning

(F) Theory of Utility (Cardinal & Ordinal)

(i) Cardinal Utility Theory

- Utility can be measured in numbers (utils)
- Law of diminishing marginal utility applies

(ii) Ordinal Utility Theory

- Utility is ranked, not measured
- Indifference curve analysis used

(G) Theory of Planned Behaviour (TPB)

Developed by: Icek Ajzen

Components:

1. Attitude toward behaviour
2. Subjective norms
3. Perceived behavioral control

Outcome:

- Determines purchase intention and behaviour

(H) Engel–Kollat–Blackwell (EKB) Model

Focus:

Comprehensive consumer decision-making model

Stages:

1. Problem recognition
2. Information search
3. Evaluation of alternatives
4. Purchase decision
5. Post-purchase behaviour

5. actors Influencing Consumer Behaviour

(A) Cultural Factors

- Culture
- Subculture
- Social class

(B) Social Factors

- Family
- Roles and status
- Reference groups

(C) Personal Factors

- Age & life cycle
- Occupation
- Income
- Lifestyle
- Personality

(D) Psychological Factors

- Motivation
- Perception
- Learning
- Beliefs and attitudes

6. **Consumer Decision-Making Process**
    1. Problem Recognition
    2. Information Search
        - Internal (memory)
        - External (ads, reviews)
    3. Evaluation of Alternatives
    4. Purchase Decision
    5. Post-Purchase Behaviour
        - Satisfaction / dissatisfaction
        - Cognitive dissonance

7. **Importance of Consumer Behaviour**
    - Helps in marketing strategy formulation
    - Useful in product design & innovation
    - Aids in market segmentation
    - Improves customer satisfaction
    - Supports policy-making and consumer protection

8. **Criticism of Consumer Behaviour Theories**
    - Overemphasis on rationality
    - Difficult to measure psychological factors
    - Cultural variations not fully captured
    - Rapid changes in consumer preferences

Theory of Production and Costs

1. **Meaning of Production**

    Production refers to the process of transforming inputs (factors of production) into outputs (goods and services) to satisfy human wants.

    Definitions:
    - Paul Samuelson:
        - Production is the process of creating utility by transforming inputs into outputs.
    - Alfred Marshall:
        - Production includes all efforts that increase the utility of goods.

2. **Factors of Production**
    2. Land
        - Natural resources (soil, minerals, water)
        - Fixed in supply
    3. Labor
        - Human effort (physical + mental)
        - Variable factor
    4. Capital
        - Man-made resources (machines, tools)
        - Produced means of production
    5. Entrepreneur
        - Organizer and risk bearer
        - Decision maker

3. **Production Function**

Meaning:

A production function shows the functional relationship between inputs and output.

General Form:

Q = f(L, K)

Where:

- Q = Output
- L = Labor
- K = Capital

4. **Types of Production Function**

(A) Short-Run Production Function

- At least one factor is fixed
- Typically, capital is fixed and labor is variable

(B) Long-Run Production Function

- All factors are variable
- Firm can change scale of production

5. **Law of Variable Proportions (Short Run)**

Meaning:

It explains how output changes when one input is varied while others remain fixed.

Phases:

Stage I: Increasing Returns

- Total Product (TP) increases at increasing rate
- Marginal Product (MP) rises
- Better utilization of fixed factors

Stage II: Diminishing Returns

- TP increases at decreasing rate
- MP declines but remains positive
- Optimum stage (rational producer operates here)

Stage III: Negative Returns

- TP decreases
- MP becomes negative
- Overutilization of variable factor

6. **Concepts of Product**

1. Total Product (TP)
   - Total output produced
2. Marginal Product (MP)
   - Change in TP due to one additional unit of input

   $MP = \frac{d(TP)}{dL}$
3. Average Product (AP)
   - Output per unit of input

   $AP_L = \frac{TP}{L}$

   Relationship:
   - MP > AP → AP rises
   - MP = AP → AP maximum
   - MP < AP → AP falls

7. Law of Returns to Scale (Long Run)

Meaning:

Explains output changes when all inputs are increased proportionately.

Types:

1. Increasing Returns to Scale
   - Output increases more than proportionately
   - Due to economies of scale
2. Constant Returns to Scale
   - Output increases in same proportion
3. Decreasing Returns to Scale
   - Output increases less than proportionately
   - Due to diseconomies

8. Isoquants (Equal Product Curves)

Meaning:

An isoquant represents combinations of inputs that yield the same level of output.

Properties:

- Downward sloping
- Convex to origin
- Do not intersect
- Higher isoquant → higher output

9. Iso-Cost Line

Meaning:

Represents combinations of inputs that cost the same.

Equation:

$C = wL + rK$

Where:

- C = Total cost
- w = Wage rate
- r = Rent of capital

10. producer's Equilibrium

Condition:

Producer is in equilibrium where:

- Isoquant is tangent to iso-cost line

Mathematical Condition:

$MRTS = \frac{w}{r}$

Where MRTS = Marginal Rate of Technical Substitution

Theory of Cost

11. Meaning of Cost

- Cost refers to the expenditure incurred in producing goods and services.

Definition:

- Cost is the monetary value of resources used in production.

12. Types of Costs

(A) By Nature

1. Explicit Costs
   - Actual payments (wages, rent)
2. Implicit Costs
   - Opportunity costs of owned resources

(B) By Time Period

1. Short-Run Costs
    - Some costs fixed
2. Long-Run Costs
    - All costs variable

(C) By Behaviour

1. Fixed Costs (FC)
    - Do not change with output
    - Example: rent, salary
2. Variable Costs (VC)
    - Change with output
    - Example: raw materials
3. Semi-variable Costs
    - Partly fixed, partly variable

13. Total, Average and Marginal Cost

1. Total Cost (TC)
   $TC = FC + VC$
2. Average Cost (AC)
   $AC = \frac{TC}{Q}$
3. Average Fixed Cost (AFC)
   $AFC = \frac{FC}{Q}$
4. Average Variable Cost (AVC)
   $AVC = \frac{VC}{Q}$
5. Marginal Cost (MC)
   $MC = \frac{\Delta TC}{\Delta Q}$

14. Relationship Between Cost Curves

- MC intersects AC and AVC at their minimum points
- AFC continuously declines
- AC and AVC are U-shaped
- MC is also U-shaped

15. Short-Run Cost Curves

Characteristics:

- AFC → downward sloping
- AVC → U-shaped
- AC → U-shaped
- MC → cuts AVC & AC

16. Long-Run Cost Curves

Long-Run Average Cost (LAC)

- Envelope curve of short-run AC curves
- U-shaped due to economies and diseconomies

Long-Run Marginal Cost (LMC)

- Intersects LAC at minimum point

17. Economies and Diseconomies of Scale

(A) Economies of Scale

Internal:

- Technical economies
- Managerial economies
- Financial economies

External:

- Industry-level benefits

(B) Diseconomies of Scale

- Managerial inefficiency
- Coordination problems
- Resource wastage

18. Break-Even Analysis

Meaning:

Point where total revenue equals total cost.

Formula:

$$BEP = \frac{\text{Fixed Cost}}{\text{Price} - \text{Variable Cost per unit}}$$

19. Cost-Output Relationship

- In short run: governed by law of variable proportions
- In long run: governed by returns to scale
- Cost curves reflect production efficiency

20. Importance of Production and Cost Theory

- Helps in optimal resource allocation
- Assists pricing decisions
- Guides profit maximization
- Useful in production planning
- Helps in cost control

Decision Making Under Uncertainty & Attitude Towards Risk

1. Meaning of Decision Making Under Uncertainty

Decision making under uncertainty refers to situations where the decision-maker does not know the probabilities of different possible outcomes.

Definitions:

- Frank Knight:
  - Uncertainty exists when the likelihood of outcomes cannot be measured or quantified.
- John von Neumann & Oskar Morgenstern:
  - Decision-making involves choosing among alternatives under conditions of risk and uncertainty.

2. Risk vs Uncertainty

Risk

- Probabilities of outcomes are known or can be estimated
- Measurable
- Example: insurance, gambling

Uncertainty

- Probabilities are unknown
- Non-measurable
- Example: new product launch in unknown market

3. **Nature of Decision Making Under Uncertainty**
   - Future outcomes are unpredictable
   - Multiple alternatives exist
   - Payoffs vary across states of nature
   - Decision-maker relies on judgment and criteria

4. **Elements of Decision Problem**
   1. Alternatives (Courses of Action)
   2. States of Nature (Events beyond control)
   3. Payoffs (Profits/Losses)
   4. Decision Criteria

5. **Decision Criteria Under Uncertainty**

   (A) Maximax Criterion (Optimistic Approach)
   - Select alternative with maximum possible payoff
   - Focus on best outcome

   Suitable for:
   - Risk-seeking decision-makers

   (B) Maximin Criterion (Pessimistic Approach)
   - Choose alternative with maximum of minimum payoffs
   - Focus on worst-case scenario

   Suitable for:
   - Risk-averse decision-makers

   (C) Minimax Regret Criterion (Savage Criterion)
   - Developed by Leonard J. Savage
   - Minimize maximum regret (opportunity loss)

   Steps:
   1. Construct regret table
   2. Identify maximum regret for each alternative
   3. Choose minimum among them

   (D) Laplace Criterion (Equal Probability)
   - Assumes all states are equally likely
   - Choose alternative with highest average payoff

   (E) Hurwicz Criterion (Realism Approach)
   - Combines optimism and pessimism
   - Uses coefficient of optimism (α)

   Formula:

   Value $= \alpha($ Best payoff $) + (1 - \alpha)($ Worst payoff $)$

6. **Expected Utility Theory**

   Developed by:

   John von Neumann & Oskar Morgenstern

   Meaning:

   Decision-makers choose alternatives that maximize expected utility rather than expected monetary value.

   Key Points:
   - Utility is subjective satisfaction
   - Incorporates risk preferences
   - Rational decision-making model

7. Attitude Towards Risk

- Risk attitude reflects how individuals respond to uncertainty and risk.

8. Types of Risk Attitude

(A) Risk-Averse (Risk Avoider)

Meaning:

Prefers certain outcome over risky one with same expected value.

Characteristics:

- Utility function is concave
- Diminishing marginal utility of income
- Avoids risk

Example:

Choosing fixed salary over commission-based income

(B) Risk-Neutral

Meaning:

Indifferent between certain and uncertain outcomes with same expected value.

Characteristics:

- Utility function is linear
- Focus on expected value only

(C) Risk-Seeking (Risk Lover)

Meaning:

Prefers risky outcome over certain one with same expected value.

Characteristics:

- Utility function is convex
- Increasing marginal utility
- Takes high risks

9. Utility Function and Risk

- Risk attitude depends on shape of utility curve:
  - Concave → Risk-averse
  - Convex → Risk-seeking
  - Linear → Risk-neutral

10. Risk Premium

Meaning:

Amount a risk-averse person is willing to pay to avoid risk.

Formula:

Risk Premium = Expected Income − Certainty Equivalent

11. Certainty Equivalent (CE)

Meaning:

- Guaranteed amount considered equally desirable as a risky prospect.

12. Methods of Handling Risk

1. Risk Avoidance
   - Eliminating risk completely
2. Risk Reduction
   - Diversification, safety measures
3. Risk Transfer
   - Insurance, contracts
4. Risk Retention
   - Accepting risk

13. Decision Trees

Meaning:

Graphical representation of decision problems showing alternatives and outcomes.

Components:

- Decision nodes (square)
- Chance nodes (circle)
- Branches (possible actions/outcomes)

14. Bayes' Theorem in Decision Making

Meaning:

Used to revise probabilities based on new information.

Application:

- Updating beliefs
- Reducing uncertainty

15. Importance of Decision Making Under Uncertainty

- Helps in strategic planning
- Improves business forecasting
- Assists in investment decisions
- Enhances managerial efficiency
- Reduces potential losses

16. Limitations

- Difficult to estimate outcomes
- Human bias affects decisions
- Requires assumptions
- Complex in real-life situations

Game Theory – Non-Cooperative Games

1. Meaning of Game Theory

Game theory is the study of strategic interaction where the outcome for each participant depends not only on their own decisions but also on the decisions of others.

Definitions:

- John von Neumann:
  - Game theory is a mathematical framework for analyzing competitive situations involving conflicting interests.
- Oskar Morgenstern:
  - It studies rational decision-making in situations of strategic interdependence.

2. Meaning of Non-Cooperative Games

Non-cooperative games are those in which players act independently without forming binding agreements or coalitions.

Key Idea:

- Each player aims to maximize their own payoff
- No enforceable cooperation

3. Characteristics of Non-Cooperative Games

1. Strategic Interdependence
   - Outcome depends on actions of all players
2. Rational Players
   - Players aim to maximize payoff

3. No Binding Agreements
    - No enforceable contracts
4. Individual Decision Making
    - Each player decides independently
5. Payoff Structure Defined
    - Outcomes expressed numerically

4. Elements of a Game

1. Players
    - Decision-makers (firms, individuals)
2. Strategies
    - Possible actions available to players
3. Payoffs
    - Rewards or outcomes (profit, utility)
4. Rules of the Game
    - Structure governing interactions
5. Information
    - What players know about others

5. Types of Non-Cooperative Games

(A) Static Games (Simultaneous Move)

- Players act at the same time
- Example: pricing decisions of firms

(B) Dynamic Games (Sequential Move)

- Players act one after another
- Example: entry deterrence strategies

(C) Complete Information Games

- All players know payoffs and strategies

(D) Incomplete Information Games

- Players lack full information

6. Payoff Matrix

A payoff matrix shows the outcomes of different strategy combinations.

Example: Two Firms Pricing Strategy

	Firm B: High Price	**Firm B: Low Price**
Firm A: High Price	(10, 10)	(2, 15)
Firm A: Low Price	(15, 2)	(5, 5)

- Values represent (Firm A payoff, Firm B payoff)

7. Dominant Strategy

Meaning:

A strategy that yields a better payoff regardless of what the opponent does.

Types:

1. Strictly Dominant Strategy
2. Weakly Dominant Strategy

Example:

In the above matrix:

- Choosing Low Price gives better payoff for both firms
    - Hence, Low Price is dominant

8. Nash Equilibrium

Developed by: John Nash

Meaning:

A situation where no player can improve their payoff by changing strategy unilaterally.

Condition:

Each player's strategy is the best response to others.

Example (from above matrix):

- (Low Price, Low Price) = (5,5)
- No firm benefits by deviating alone
    - Nash Equilibrium

9. Prisoner's Dilemma (Important Model)

Structure:

Two players choose between cooperation and defection.

Payoff Matrix:

	B Cooperates	B Defects
A Cooperates	(3, 3)	(0, 5)
A Defects	(5, 0)	(1, 1)

Analysis:

- Dominant strategy: Defect
- Nash Equilibrium: (Defect, Defect) → (1,1)
- But (3,3) is socially better

Insight:

Individual rationality leads to collective inefficiency

10. Best Response Strategy

Meaning:

A strategy that gives maximum payoff given opponent's strategy.

Example:

- If Firm B chooses High Price → Firm A chooses Low Price
- If Firm B chooses Low Price → Firm A still chooses Low Price
    - Low Price is best response

11. Mixed Strategy

Meaning:

Players randomize over strategies with certain probabilities.

Used when:

- No pure strategy equilibrium exists

Example:

Rock–Paper–Scissors

- Each strategy chosen with probability 1/3

12. Zero-Sum vs Non-Zero-Sum Games

(A) Zero-Sum Game

- One player's gain = other's loss

(B) Non-Zero-Sum Game

- Both can gain or lose
- Most real-life business situations

13. Sequential Games and Game Tree

Meaning:

Games where players move in sequence.

Representation:

Game tree (extensive form)

Example:

Firm A enters market → Firm B reacts (fight/accommodate)

- If B accommodates → both earn profits
- If B fights → both incur losses

14. Subgame Perfect Equilibrium

Meaning:

- A refinement of Nash equilibrium in dynamic games.

Condition:

- Strategy must be optimal at every stage of the game.

15. Repeated Games

Meaning:

Same game played multiple times.

Importance:

- Encourages cooperation
- Punishment strategies possible

Example: Firms maintaining high prices to avoid price wars

16. Applications of Non-Cooperative Game Theory

1. Oligopoly Pricing
2. Advertising Strategies
3. Market Entry Decisions
4. Auctions and Bidding
5. Political Strategy
6. International Trade Negotiations

17. Limitations

- Assumes perfect rationality
- Difficult to predict real behaviour
- Complex mathematical models
- Ignores emotions and bounded rationality

Market Structures, Competitive Equilibria & Their Efficiency Properties

1. Meaning of Market Structure

Market structure refers to the organizational and competitive characteristics of a market that influence the behavior of firms and the determination of price and output.

Definitions:

- Edward Chamberlin:
  - Market structure reflects the number of firms, nature of products, and degree of competition.
- Joan Robinson:
  - It describes the conditions under which firms operate and compete in a market.

2. Determinants of Market Structure

1. Number of Buyers and Sellers
2. Nature of Product (Homogeneous/Differentiated)
3. Barriers to Entry and Exit
4. Degree of Control over Price
5. Availability of Information
6. Mobility of Factors of Production

3. Types of Market Structures

(A) Perfect Competition

Meaning:

A market where many buyers and sellers trade homogeneous products with no control over price.

Features:

1. Large number of buyers and sellers
2. Homogeneous product
3. Free entry and exit
4. Perfect knowledge
5. No selling cost
6. Price taker firms

Equilibrium of Firm

- Firm maximizes profit where:
  MR = MC
- In perfect competition:
  MR = AR = Price

Short-Run Situations:

1. Supernormal profit
2. Normal profit
3. Loss

Long-Run Equilibrium:

- Only normal profit
- Condition:
  P = MR = MC = AC

Example:

Agricultural markets (wheat, rice)

(B) Monopoly

Meaning:

A market with a single seller and no close substitutes.

Features:

1. Single firm
2. Unique product
3. High barriers to entry
4. Price maker
5. Price discrimination possible

Equilibrium:

MR = MC

But:

P > MR

Types:

1. Pure monopoly
2. Legal monopoly
3. Natural monopoly

Example: Public utilities (electricity boards)

(C) Monopolistic Competition

Developed by: Edward Chamberlin

Meaning:

Many firms selling differentiated products.

Features:

1. Large number of firms
2. Product differentiation
3. Some price control
4. Selling costs (advertising)
5. Free entry and exit

Equilibrium:

MR = MC

In long run:

P = AC > MC

Example: Toothpaste, clothing brands

(D) Oligopoly

Meaning:

Market dominated by few firms.

Features:

1. Few sellers
2. Interdependence
3. Barriers to entry
4. Price rigidity
5. Non-price competition

Types:

1. Collusive oligopoly
2. Non-collusive oligopoly

Models:

- Kinked demand curve
- Cartel model
- Price leadership

Example: Telecom industry

4. Comparative Analysis of Market Structures

Feature	Perfect Competition	Monopoly	Monopolistic Competition	Oligopoly
Firms	Many	One	Many	Few
Product	Homogeneous	Unique	Differentiated	Differentiated/Homogeneous
Price Control	None	High	Moderate	Significant
Entry	Free	Restricted	Free	Restricted

5. **Competitive Equilibrium**

Meaning:

A situation where demand equals supply and no participant has incentive to change behavior.

Condition:

- Demand = Supply`

Individual Firm Equilibrium:

- MR = MC

Industry Equilibrium:

- Market price determined by intersection of demand and supply curves

Example: If demand for wheat equals supply at ₹20/kg → equilibrium price = ₹20

6. **General Equilibrium**

Developed by: Leon Walras

Meaning:

Simultaneous equilibrium in all markets in an economy.

Key Idea:

- Interdependence of markets
- Change in one market affects others

7. **Efficiency in Economics**

Types of Efficiency:

(A) Allocative Efficiency

Meaning:

Resources are allocated where they are most valued.

Condition:

P = MC

(B) Productive Efficiency

Meaning:

Goods are produced at lowest cost.

Condition:

$MC = AC_{min}$

(C) Dynamic Efficiency

- Innovation and technological progress

(D) X-Efficiency

- Efficiency within firm operations

8. **Efficiency Under Different Market Structures**

Perfect Competition

Outcome:

- Achieves both allocative and productive efficiency

Reason:

- P = MC = AC

Monopoly

Outcome:

- Inefficient

Reasons:

1. Price > MC → Allocative inefficiency
2. Not minimum cost → Productive inefficiency
3. Deadweight loss

Example: Monopolist restricts output → higher price → welfare loss

Monopolistic Competition
Outcome:

- Partial inefficiency

Reasons:

1. Excess capacity
2. P > MC

Oligopoly
Outcome:

- Depends on behavior

Cases:

- Collusion → Monopoly-like inefficiency
- Competition → Better efficiency

9. Welfare Economics and Efficiency

Key Concept:

- Maximization of social welfare
- Pareto Efficiency
- Developed by: Vilfredo Pareto

Meaning:

- situation where no one can be made better off without making someone worse off.

10. Fundamental Theorems of Welfare Economics

First Theorem:

- Competitive equilibrium is Pareto efficient

Second Theorem:

- Any efficient allocation can be achieved with proper redistribution

11. Market Failure

Meaning:
When market fails to allocate resources efficiently.
Causes:

1. Externalities
2. Public goods
3. Monopoly power
4. Information asymmetry

Example: Pollution (negative externality)

12. Government Intervention

1. Price controls
2. Taxes and subsidies
3. Regulation
4. Public provision

13. Practical Examples

Example 1: Perfect Competition
Farmers selling identical wheat → no price control → efficient outcome
Example 2: Monopoly
Electricity provider → high price → inefficiency
Example 3: Oligopoly
Telecom companies → price wars or collusion
Example 4: Monopolistic Competition
Restaurants → differentiated services → moderate competition