Microeconomics in Nature

Microeconomics · Answer Key · 19 Questions

1. In many species, such as honeybees, the 'waggle dance' is a form of communication that conveys information about the direction and distance to a food source. This is an example of:

A) Perfect information in a competitive market
B) Asymmetric information
C) Signaling to reveal quality
D) Information economics and resource discovery

2. The optimal foraging theory suggests that predators will choose to consume prey that maximizes their net energy intake per unit time. For example, a lion might prioritize hunting zebras over wildebeest if zebras offer a better energy return for the effort involved. This illustrates the concept of:

A) Diminishing marginal returns
B) Price discrimination
C) Rational choice and cost-benefit analysis
D) Externalities in predation

3. When a group of meerkats cooperate to forage and watch for predators, with some individuals acting as sentinels while others search for food, they exhibit:

A) A monopoly on foraging grounds
B) Positive externalities from cooperation
C) The tragedy of the commons
D) Rent-seeking behavior

4. The concept of 'niche partitioning' in ecosystems, where different species evolve to utilize slightly different resources or habitats to avoid direct competition, is analogous to:

A) Perfect price discrimination by a monopolist
B) Product differentiation and market segmentation
C) Collusion in a cartel
D) Price ceilings in a regulated market

5. The red deer's dominance hierarchy, where stronger individuals monopolize access to mating opportunities and prime foraging areas, demonstrates:

A) Consumer surplus
B) Producer surplus and market power
C) The law of demand
D) Free rider problems

6. The phenomenon of 'mimicry' in nature, where a harmless species evolves to resemble a dangerous one (e.g., hoverflies resembling wasps), can be seen as a form of:

A) Price signaling
B) Adverse selection
C) Moral hazard
D) Information asymmetry and strategic signaling

7. When a river ecosystem is polluted by a factory upstream, the cost of the pollution (e.g., damaged fishing, health issues) that is borne by others is a classic example of:

A) A public good
B) A positive externality
C) A negative externality
D) Rivalry in consumption

8. The idea that limited resources, such as freshwater or grazing land, can be depleted by over-consumption by individuals acting in their own self-interest is known as:

A) The law of supply
B) The tragedy of the commons
C) Comparative advantage
D) Network externalities

9. The territorial defense of a food source by an animal, where it expends energy to prevent others from accessing its resources, represents an effort to establish:

A) Economies of scale
B) Property rights and exclusivity
C) Natural monopoly
D) Barriers to entry

10. In the study of whale migration, the significant energy expenditure for long journeys to breeding grounds suggests a high 'opportunity cost' of not feeding. This relates to:

A) Diminishing marginal utility
B) The concept of trade-offs and opportunity cost
C) Perfect substitutes
D) Elasticity of demand

11. The diversification of crops by farmers to reduce the risk of crop failure due to pests or disease is an application of the economic principle of:

A) Monopolistic competition
B) Risk management and portfolio diversification
C) Price floors
D) Bundling

12. The evolution of symbiotic relationships, where two species benefit from each other (e.g., clownfish and anemones), can be viewed as a microeconomic scenario where mutual benefit arises from:

A) Zero-sum games
B) Positive-sum interactions and specialization
C) Predatory pricing
D) Market failure

13. The phenomenon where a species' population growth is limited by the carrying capacity of its environment, leading to slower growth as resources become scarce, reflects:

A) Increasing returns to scale
B) Diminishing marginal returns to resources
C) Perfect competition
D) Price leadership

14. When a large predator species, like wolves, is reintroduced into an ecosystem and their presence influences the behavior and population dynamics of prey species (e.g., elk), it demonstrates:

A) Market power of prey
B) Top-down control and ecosystem services
C) Price gouging
D) Consumer sovereignty

15. The migratory patterns of birds, often timed with seasonal availability of food resources in different regions, are a testament to:

A) Inelastic supply
B) Adaptation to changing economic conditions (resource availability)
C) Price elasticity of supply
D) Oligopoly

16. The development of specialized tools by primates, such as using sticks to extract termites, is an example of:

A) Barriers to entry
B) Technological innovation and capital accumulation
C) Price discrimination
D) Economies of scope

17. The competitive exclusion principle states that two species competing for the exact same limited resources cannot coexist indefinitely. This is an outcome of:

A) Market segmentation
B) Intense competition and resource scarcity
C) Price fixing
D) Moral hazard

18. The 'precautionary principle' in environmental policy, which suggests taking preventive action in the face of uncertainty about potential environmental harm, is akin to:

A) Speculative bubbles
B) Risk aversion and hedging strategies
C) Perfect information
D) Price wars

19. When forest fires destroy timber resources, this represents a reduction in the economy's:

A) Consumer demand
B) Supply of natural capital
C) Market equilibrium
D) Barriers to exit