Nature-Driven Supply Chain Logistics

Supply Chain Management · Answer Key · 18 Questions

1. Which animal species is studied by operations researchers for their 'honeybee algorithm' to optimize delivery routes and resource allocation?

A) Honeybees
B) Ants
C) Termites
D) Beavers

2. What is the primary function of a 'reverse supply chain' as seen in nature through the decomposition process in forest ecosystems?

A) Predation
B) Nutrient cycling
C) Nesting
D) Pollination

3. Which migratory bird completes a 'global supply chain' flight of over 11,000 kilometers from Alaska to New Zealand without stopping?

A) Arctic Tern
B) Bar-tailed Godwit
C) Peregrine Falcon
D) Albatross

4. In logistics, 'just-in-time' production mirrors which animal behavior regarding food storage for winter?

A) Squirrel nut caching
B) Bear hibernation
C) Elephant migration
D) Wolf pack hunting

5. What term describes the efficient distribution network created by slime molds to connect food sources, often used as a model for urban transport?

A) Neural network
B) Mycelial grid
C) Vascular network
D) Root system

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6. Which animal's 'supply chain' of transporting salmon into forest ecosystems provides essential nitrogen to trees?

A) Grizzly Bears
B) Bald Eagles
C) Sea Otters
D) River Otters

7. What role do 'keystone species' play in an environmental supply chain?

A) Waste producers
B) System stabilizers
C) Resource consumers
D) Primary producers

8. Ant colonies use pheromone trails to optimize supply lines; what is the mathematical term for this shortest-path finding behavior?

A) Ant colony optimization
B) Linear programming
C) Critical path analysis
D) Six Sigma

9. Which marine species acts as a biological 'freight forwarder' by transporting nutrients through vertical migration in the ocean?

A) Blue Whale
B) Zooplankton
C) Great White Shark
D) Green Sea Turtle

10. In forest 'wood wide web' networks, which organisms act as the 'logistics providers' moving nutrients between trees?

A) Bacteria
B) Mycorrhizal fungi
C) Earthworms
D) Beetles

11. Which desert animal's water-saving physiological process is a biological equivalent to 'demand forecasting' in supply chain?

A) Camel
B) Kangaroo Rat
C) Fennec Fox
D) Oryx

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12. Termite mounds regulate internal temperature and airflow through a complex ventilation system, mimicking which supply chain principle?

A) Inventory control
B) Lean manufacturing
C) Demand-driven design
D) Dynamic routing

13. What do migratory butterflies, like the Monarch, rely on as a 'navigational signal' to manage their supply chain of long-distance movement?

A) Solar compass
B) Ocean currents
C) Magnetic fields
D) Topography

14. In an ecosystem, the transformation of raw inputs (sunlight, CO2) into biomass is conceptually similar to what stage of a supply chain?

A) Procurement
B) Manufacturing
C) Distribution
D) Retail

15. How do pack animals like wolves demonstrate 'resource pooling' in their hunting supply chain?

A) Storing excess fat
B) Shared energy expenditure
C) Sequential feeding
D) Caching prey

16. Beavers act as 'supply chain engineers' by modifying waterways; what is the primary logistical result of their dam building?

A) Flood prevention
B) Increased habitat connectivity
C) Water filtration
D) Soil aeration

17. Coral reefs function as a 'centralized distribution hub' for ocean biodiversity by providing what?

A) Protection and nutrients
B) Fresh water
C) Refined energy
D) Carbon sequestration

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18. Which species employs a 'hub-and-spoke' model by using a central hive to manage foraging 'spokes' across a wide radius?

A) Leafcutter ants

B) Honeybees

C) Termites

D) Wasps

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