Name: _____ **Date:** _____

Answer Key: Crush the Triple Bottom Line: Advanced Sustainability Quiz for College Scholars

Scholars calculate planetary boundaries and evaluate the efficacy of decoupling economic growth from environmental degradation through rigorous life-cycle assessment scenarios.

---

1. When evaluates the 'Rebound Effect' (Jevons Paradox) in industrial ecology, which outcome most accurately describes a failure in technological sustainability?

Answer: A) Increased resource efficiency leads to lower unit costs, which paradoxically increases total consumption.

The Jevons Paradox suggests that as technical progress increases the efficiency with which a resource is used, the total consumption of that resource may actually rise due to increased demand.

2. In the context of Raworth's 'Doughnut Economics' framework, the space between the social foundation and the ___ represents the safe and just space for humanity.

Answer: B) Ecological Ceiling

Kate Raworth defines the 'Ecological Ceiling' as the outer boundary consisting of nine planetary boundaries that we must not overshoot to prevent environmental collapse.

3. Strong sustainability models posit that natural capital and manufactured capital are perfect substitutes, allowing for the total depletion of ecosystems if economic wealth is proportionally increased.

Answer: B) False

Strong sustainability assumes that natural capital provides unique functions that cannot be replicated by man-made capital (non-substitutability), unlike 'weak sustainability'.

4. A life-cycle assessment (LCA) reveals that a 'bio-based' plastic has a higher eutrophication potential than conventional PET. This is most likely due to:

Answer: C) Runoff from synthetic fertilizers used in the cultivation of the feedstock crops.

Bio-plastics often involve industrial agriculture, which contributes significantly to nutrient runoff (nitrogen and phosphorus), leading to eutrophication in aquatic systems.

5. The 'Extended Producer Responsibility' (EPR) policy approach shifts the environmental costs of a product's end-of-life stage from the taxpayer to the ___.

Name: _____ **Date:** _____

Answer: C) Original Manufacturer

EPR is a strategy to add the expenses associated with the disposal of products to the manufacturing cost, incentivizing producers to design for recyclability.

6. The 'Precautionary Principle' suggests that if an action or policy has a suspected risk of causing harm to the public or the environment, in the absence of scientific consensus, the burden of proof that it is NOT harmful falls on those taking the action.

Answer: A) True

This principle is foundational in environmental law, shifting the burden of proof to ensure safety rather than requiring victims to prove harm after the fact.

7. Which transition represents a shift toward a 'Steady-State Economy' as proposed by Herman Daly?

Answer: B) Stabilizing populations and resource throughput while focusing on qualitative development.

A steady-state economy aims for a stable population and constant stock of physical wealth, maintained by a minimum rate of throughput.

8. When an organization engages in ___, they are misleading stakeholders regarding their environmental practices or the environmental benefits of a product.

Answer: B) Green-Washing

Green-washing involves deceptive marketing used to promote an image of environmental responsibility when the actual practices do not meet those standards.

9. Is the 'Kuznets Curve' hypothesis—which suggests that environmental degradation initially increases with economic growth but then decreases after a certain income threshold—universally validated for all pollutants?

Answer: B) False

The Environmental Kuznets Curve (EKC) holds for local pollutants like SO2, but rarely for global pollutants like CO2 or biodiversity loss, which often continue to rise with GDP.

10. The 'Tragedy of the Commons' is often cited as a failure of sustainability. From a game theory perspective, what is the primary structural driver of this tragedy?

Answer: B) The mismatch between individual benefit (rational self-interest) and collective cost.

Name: _____ **Date:** _____

The tragedy occurs because individuals capture the full benefit of extracting a resource while the costs are shared among the entire group, leading to over-exploitation.