

**COLLEGE TRB PAPER 2**  
**VICTORY COUNTDOWN SERIES**  
**DAY 2**  
**DESCRIPTIVE ESSAY**

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**POINTS TO KEEP IN MIND**

**Read the question very carefully:**

1. Understand the theme clearly
2. Write a crisp introduction
3. Use structured headings
4. Cover multi-dimensional analysis
5. Use Indian/TN examples
6. End with a thoughtful conclusion

If you follow this, you will consistently write high-scoring TRB-standard essays.

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**Biodiversity is the foundation of human survival, not a luxury**

Biodiversity refers to the variety of life on Earth—plants, animals, microorganisms, and the ecosystems that sustain them. It is often misunderstood as merely a symbol of nature's beauty or an aesthetic asset. In reality, biodiversity forms the very foundation of human survival. It supports our food systems, regulates the climate, purifies water, maintains soil fertility, and protects us from diseases. Without biodiversity, life on Earth—including human life—would become extremely fragile. Understanding biodiversity as a necessity, not a luxury, is crucial for shaping sustainable development and ensuring long-term planetary health.

**1. Biodiversity Ensures Food Security**

**a. Variety of Crops and Livestock**

Human survival depends on diverse food sources. Different crop varieties withstand different climates, pests, and diseases. When biodiversity declines, agriculture becomes vulnerable to climate change and epidemics. Monocultures may yield more temporarily,

but they collapse easily under stress. Biodiversity, therefore, acts as an insurance system that maintains stable food production.

#### **b. Pollination and Pest Control**

Pollinators such as bees, butterflies, and birds are responsible for the reproduction of a large portion of global crops. Similarly, natural predators keep harmful pests under control. The loss of these species leads to reduced harvests and increased dependence on chemical inputs. Thus, biodiversity directly supports agriculture and human nutrition.

### **2. Biodiversity Maintains Ecosystem Services Essential for Life**

#### **a. Water Purification and Climate Regulation**

Wetlands, forests, and mangroves purify water, protect against floods, and regulate temperatures. Forests act as carbon sinks, absorbing greenhouse gases and slowing climate change. Without these ecosystems, human settlements would face water scarcity, extreme weather, and increased pollution.

#### **b. Soil Fertility and Nutrient Cycling**

Countless microorganisms live in the soil and perform functions such as decomposition, nitrogen fixation, and nutrient cycling. These invisible species maintain soil health and make agriculture possible. Destroying biodiversity destroys the foundation of food production.

### **3. Biodiversity Protects Human Health**

#### **a. Source of Medicines**

A majority of modern medicines originate from plants, animals, and microorganisms. Traditional medicinal systems also depend heavily on natural biodiversity. The disappearance of species closes the door to potential cures for future diseases.

#### **b. Disease Regulation**

Healthy ecosystems help control the spread of infectious diseases. When forests are destroyed and species vanish, disease-carrying organisms like mosquitoes and rodents multiply faster. Biodiversity, therefore, acts as a natural barrier against epidemics.

### **4. Biodiversity Supports Livelihoods and the Economy**

#### **a. Rural and Indigenous Communities**

Millions of people rely on forests, fisheries, pastoral lands, and natural resources for their daily survival. Loss of biodiversity means loss of income, food, and cultural identity for these communities.

#### **b. Tourism and Ecosystem-Based Industries**

Wildlife tourism, sustainable forestry, fisheries, and organic agriculture depend directly on biodiversity. These sectors generate employment and revenue, proving that biodiversity is an economic asset, not merely an optional luxury.

### **5. Biodiversity Strengthens Climate Resilience**

#### **a. Protection Against Natural Disasters**

Mangroves reduce the impact of cyclones and tsunamis; forests prevent landslides; coral reefs protect coastlines. These natural systems act as protective infrastructure, often more effective than man-made structures.

#### **b. Adaptation to Climate Change**

Diverse ecosystems adapt better to climatic shifts than uniform ones. Biodiversity gives nature the flexibility to survive changing temperatures, rainfall patterns, and extreme events—flexibility that humans depend on for their own resilience.

Biodiversity is not a decorative element of nature; it is the structural framework that supports human existence. Food production, clean water, fertile soil, disease protection, economic stability, and climate resilience all depend on the richness of life on Earth. When biodiversity declines, human survival becomes increasingly uncertain. Therefore, conserving biodiversity is not an environmental hobby—it is a critical life-saving responsibility. To protect biodiversity is to protect humanity itself.

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