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Anthropology short notes

Synthetic theory of evolution

UPSC Civil Services (Main) Examination · Anthropology Paper 1 · Anthropology GS 1 (Paper I)

(c) Synthetic theory of evolution; Brief outline of terms and concepts of evolutionary biology (Doll's rule, Cope's rule, Gause's rule, parallelism, convergence, adaptive radiation, and mosaic evolution).

Short notes by official syllabus heading.

Revision notes for the Anthropology optional. Confirm thinkers and examples against standard texts and recent papers.

<https://wrapexams.com/upsc/archives/anthropology-notes/paper-1/synthetic-theory-evolutionary-biology/>

Synthetic Theory Of Evolution

Definition

The Synthetic Theory of Evolution (Neo-Darwinism) is the modern explanation of evolution that integrates Darwin's theory of Natural Selection with Mendelian genetics, population genetics, cytology, molecular biology, and paleontology. It explains evolution as changes in allele (gene) frequencies within populations over generations.

Example / case study

Long neck of giraffe developed by stretching to reach leaves.

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Evolution is inconsistent and asymmetrical - different parts of an organism evolve at different rates and different times.

Example / case study

In human evolution, bipedalism evolved before a larger brain. 1□ Boundaries between modules are hard to define, as body traits are interconnected and influence one another. 3□ Cope's Rule(T: Like rope want to be larger) States that living species tend to evolve toward larger body size over time.

Definition

Adaptive radiation is the process by which organisms rapidly diversify from a common ancestor into multiple new forms when environmental changes make new resources available or create new ecological niches.

Example / case study

Humans vs other terrestrial animals - humans dominate resources leading to exclusion of others.

Definition

"Nothing is free" - evolution takes time and selective death; this is the cost.

Example / case study

Lemurs in Madagascar diversified into over 100 species, each adapted to unique environments. Old World monkeys and apes diversified into multiple species - baboons, gorillas, chimpanzees, orangutans, and humans. Refers to the development of similar traits in unrelated species due to similar environmental pressures, not common ancestry. Such species remain distinct overall but show functional similarity in specific traits.

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Definition

Refers to the evolutionary diversification within the primate family, including humans, apes, and monkeys, into multiple species adapted to varied environments.

Example / case study

Darwin's Finches in the Galápagos Islands - 14 species evolved from one ancestral finch, differing in beak size and shape suited to different food sources (seeds, insects, nectar). Mammals after the extinction of dinosaurs (~65 million years ago) diversified into forms adapted for running, leaping, swimming, climbing, and flying. Lemurs in Madagascar diversified into over 100 species, each adapted to unique environments. Old World monkeys and apes diversified into multiple species - baboons, gorillas, chimpanzees, orangutans, and humans.

Thinkers

Clifford Geertz (Interpretive Anthropology): Geertz focused on cognition and meaning. Heavily influenced by **Max Weber's** Verstehen and hermeneutics, he argued that humans are suspended in "webs of significance" they have spun themselves. Victor Turner (Symbolic Anthropology): Turner focused on social processes and action. Influenced by Max Gluckman and Arnold van Gennep, he examined how symbols move and work dynamically during crises and transitions.: Symbols as **Vehicles vs. Operators. Geertz** (Vehicles): Symbols are viewed as vehicles of culture that convey established ideas and orientations to decode what a society "tells itself about itself". Turner (Operators): Symbols are operators in social processes. They act as tools to prompt social action, resolve conflict, and guide individuals through status changes. Turner identified specific properties of symbols: Multivocality (many meanings), Condensation (packed meanings), and Polarization (sensory vs. ideological poles).: **Thick Description vs. Social Drama. Geertz** (Methodology): He championed "**Thick Description**," which involves providing a detailed account of behavior within its cultural context to explain not just what happened, but its deep intent and meaning (e.g., distinguishing a blink from a conspiratorial wink).

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