

EVOLUTIONARY BIOLOGY

Allied Course Paper – I

THEORY

(48 Periods)

Unit 1: Introduction to Evolutionary Theories

(4)

Lamarckism, Darwinism, Neo-Darwinism

Unit 2: History of Life

(4)

Unit 3: Evidences of Evolution

(6)

Fossils as direct evidences, Types of fossils, Reasons for incompleteness of fossil record, (phylogeny of horse as an example), Molecular evidences (Globin genes).

Unit 4: Processes of Evolutionary Change

(13)

Causes of organic variations; Role of variations in evolution (with one example); Hardy-Weinberg equilibrium and Genetic drift; Natural selection: Concept and example (Industrial melanism)

Unit 5: Products of Evolutionary Change

(8)

Biological species concept (Advantages and limitations); Isolating mechanisms, Modes of speciation (Allopatric, Sympatric)

Unit 6: Mass Extinction

(5)

(K-T Extinction)

Unit 7: Origin and Evolution of Man

(8)

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PRACTICAL

1. Study of fossils from plaster cast models and pictures.
2. Study of homology, analogy and homoplasy from suitable specimens.
3. Study of natural selection under different conditions using simulation exercise.
4. Demonstration of role of natural selection and genetic drift in changing allele frequencies.

ESSENTIAL READINGS

- Ridley, M. (2004). *Evolution*. III Edition. Blackwell Publishing.
- Hall, B. K. and Hallgrímsson, B. (2008). *Evolution*. IV Edition. Jones and Bartlett Publishers.
- Campbell, N. A. and Reece, J. B. (2011). *Biology*. IX Edition, Pearson, Benjamin, Cummings

SUGGESTED READINGS

- Moody, P. A. (1962). *Introduction to Evolution*. New York Harper.
 - Savage, J. M. (1963). *Evolution*. Holy, Rinehart and Winston.
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