

6. (a) What are the various mechanisms by which the formation of new genes and its evolution takes place? (10)
- (b) What are the historical factors associated with the geographical distribution of species? (5)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1097

I

Unique Paper Code : 2182013502

Name of the Paper : Organismal and Evolutionary Biology (DSCC-14)

Name of the Course : **B.Sc. (H) Environmental Sciences**

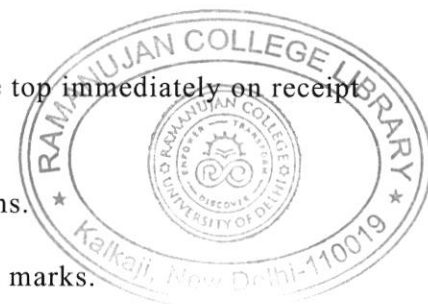
Semester : V

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer any **four** questions.
3. **All** questions carry equal marks.



1. (a) Write short notes on the following : (2×5=10)

(i) Evolutionary Synthesis

- (ii) Oparin-Haldane Hypothesis
- (iii) Co-evolution
- (iv) Phylogeny
- (v) Mendelian population

(b) Fill in the blanks : (1×5)

- (i) We are currently living in Era.
- (ii) Colloidal bubbles bound by lipid bi-layer; aggregates of molecules are called
- (iii) The famous naturalist, A.R. Wallace, divided the Earth into biogeographic realms based on the distribution of flora and fauna.
- (iv) Speciation by geographic isolation is also known as speciation.
- (v) The full form of LUCA is

2. Write short notes on any **three** of the following :
(5×3=15)

- (i) Geological Time Scale

- (ii) Geographical evidence of evolution
- (iii) Cell-to-cell communication
- (iv) Molecular Clock

3. (a) Explain the theories of evolution proposed by Darwin, Lamarck and the other modern scientists.
(10)

(b) What are the bottleneck effect and the founder effect related to the concept of genetic drift?
(5)

4. (a) Describe the steps involved in the formation and evolution of a Eukaryotic cell.
(8)

(b) What is a mass extinction phenomenon? Explain its characteristics. How many mass extinction phenomena have the Earth undergone?
(7)

5. (a) Briefly describe the important stages of evolution of *Homo sapiens*.
(8)

(b) Explain the Hardy-Weinberg principle of equilibrium.
(7)