

This question paper contains **3** printed pages]

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S. No. of Question Paper : **5550**

Unique Paper Code : **2232013603**

Name of the Paper : **DSC Evolutionary Biology**

Name of the Course : **B.Sc. (Hons.) Zoology**

Semester : **VI NEP-UGCF**

Duration : **2 Hours**

Maximum Marks : **60**

*(Write your Roll No. on the top immediately on receipt of this question paper.)*

Draw well-labelled diagrams wherever necessary.

Attempt *four* questions in all.

Question No. **1** is compulsory.

1. All parts of this question are compulsory : 15

(a) Define the following : 4

(i) Kin Selection

(ii) Darwinian fitness

(iii) Stromatolites

(iv) Genetic load.

P.T.O.

- (b) Differentiate between the following : 6
- (i) Convergent and Divergent evolution
  - (ii) Allopatric and Sympatric speciation
  - (iii) Inversion and Polyploidy mutations.
- (c) Fill in the blanks with appropriate answers : 5
- (i) In large populations ..... will be the primary micro evolutionary force responsible for changing allele frequencies, while ..... will be prominent in smaller populations often leading to non-adaptive evolution.
  - (ii) Lynn Margulis is credited for the .....
  - (iii) ..... is the largest extinction in the history of life on earth.
  - (iv) ..... is also commonly referred to as dawn horse.
2. (a) Give a brief description of theory of biochemical origin of life on earth. How were the primary environmental conditions conducive to origin of life on earth ? 7+2
- (b) Comment on the causes and evolutionary consequences of K-T mass extinction. 6
3. (a) Discuss the different ways in which organic variations provide raw material for evolution ? 8

- (b) Describe the various prezygotic isolating mechanism with suitable examples. 7
4. (a) Discuss the salient features of natural selection. Detail their various types with suitable graphs and examples. 3+9
- (b) Elaborate the merits and demerits of biological species concept. 3
5. (a) Tabulate the trends in the evolutionary progression of horse phylogeny with reference to important fossil records. 8
- (b) Explain the various ways in which Genetic drift can operate on populations. 7
6. Write short notes on any *three* of the following : 5,5,5
- (a) *Australopithecus*
- (b) Neutral theory of molecular evolution
- (c) Geological time scale
- (d) Lamarckism
- (e) Adaptive resemblances.