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5. (a) Discuss about different types of genetic variations and their role in evolution. (9)
- (b) Differentiate between the phylogenetic species concept and ecological species concept. (6)
6. Write short notes on any **three** of the following :
- (a) Migration and Mutation
- (b) Camouflage and Mimicry
- (c) Origin and Evolution of Insects
- (d) Geological time Scale (3×5=15)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5534

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Unique Paper Code : 2234000032

Name of the Paper : Concept of Evolutionary Biology (DSC)

Name of the Course : **B.Sc. (P) (Applied Life Sciences - Agrochemicals & Pest**

Semester : VIII, NEP-UGCF (May/June 2026)

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. Attempt **four** questions in all.
3. Question No. **1** is compulsory.
4. Draw well labelled diagrams wherever required.

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1. (a) Define (**Any five**) : (1×5=5)

- (i) Speciation
- (ii) Chemogeny
- (iii) Sexual Selection
- (iv) Ring Species
- (v) Genetic Load
- (vi) Genetic drift

(b) Differentiate between the following (**Any three**) :

(2×3=6)

- (i) Darwinism and Neo-Darwinism
- (ii) Microevolution and Macroevolution
- (iii) Founder's Effect and Bottleneck Effect
- (iv) Oxygenic vs Anoxygenic Photosynthesis

(c) Justify the following : (1×4=4)

- (i) Fossils are strong evidence for evolution.
- (ii) The importance of the geological time scale in studying evolution.

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(iii) Artificial selection can lead to rapid evolutionary changes.

(iv) The K-T extinction event was a turning point in evolutionary history.

2. (a) Describe the different types of natural selection with suitable examples. (9)

(b) Critically analyze the endosymbiotic theory in light of molecular phylogeny. Are there alternative explanations for organelle origin? (6)

3. (a) Discuss the different modes of speciation with suitable examples. (9)

(b) Critically analyze the multiple hypotheses for the K-T extinction and discuss their combined effects on global ecosystems. (6)

4. (a) Briefly explain the isolating mechanisms of animals in details. (9)

(b) Differentiate between the biological species concept and evolutionary species concept. (6)

P.T.O.