AS-2051
GENETICS AND EVOLUTION -II
SEMESTER -II

TIME :3 HOURS **M:M: 40**

5176/MH

Note: Candidates are required to attempt two questions each from section A and B and the entire section C.

Section – A

1. Discuss the structure and functions of DNA. (6)
2. What is mitosis? Discuss the mechanism and significance of mitosis. (6)
3. Name the plant and characters used by Mendel for studying inheritance. Discuss the law of segregation using a relevant example. (6)
4. What do you mean by complementary genes? Discuss the mechanism and significance of complementary genes. (6)

Section – C

5. Define transcription. Describe the process of transcription in prokaryotes. (6)
6. Explain the theory of Inheritance of acquired characters. Discuss its merits and objections. (6)
7. What is gene regulation? Discuss the mechanism of gene regulation in eukaryotes. (6)
8. Explain the Paleontological and embryological evidences of organic evolution. (6)

Section – C

9. Answers to the following questions briefly.
   a. What is satellite DNA?
   b. Define linkage and comment on its significance.
   c. Why DNA is an appropriate genetic material?
   d. Define law of independent inheritance.
   e. Differentiate between mutation and variation.
   f. List the requirements for translation in eukaryotes.
   g. Define theory of natural selection.
   h. Define the term gene.

(2×8 = 16)