The Assam Royal Global University, Guwahati

Royal School of Life Sciences
BSc 2nd Semester
Semester End Examination, July 2022
Course Title : Molecular Biology
Course Code : ZOO142C203

Time: 3 Hours **Maximum Marks: 70**

Note: Attempt all questions as per instructions given.
The figures in the right-hand margin indicate marks.

Section – A

1. Attempt **all questions**. (Maximum word limit 50) **2 x 8**

a. Mention two important differences between eukaryotic and prokaryotic genome.
b. What do you mean by supercoiling of DNA?
c. What is constitutive heterochromatin?
d. Name the different histone proteins constituting the nucleosome.
e. What do you mean by transcription unit?
f. What do you mean by exons and introns?
g. What do you mean by miRNA?
h. Define RNA interference.

Section – B

2. Attempt **any one** of the following: **12 x 1**

a. Discuss Hershey and Chase experiment.
b. Discuss the salient features of Watson and Crick model of DNA.

3. Attempt **any two** of the following: **7 x 2**

a. Discuss the rolling circle mode of DNA replication.
b. Classify the different types of DNA damage.
c. Schematically explain the process of Base excision repair.

4. Attempt **any two** of the following: **7 x 2**

a. Discuss the process of transcription in prokaryotes.
b. Explain alternative splicing.
c. Diagramatically explain translation.

5. Attempt **any two** of the following: **7 x 2**

a. Explain the tryptophan operon with diagram.
b. Discuss the process of X-inactivation.
c. Briefly discuss transcriptional regulation in prokaryotes.