

U.G. 5th Semester Examination - 2020

ZOOLOGY

[HONOURS]

Course Code : ZOOL-H-CC-T-11

Full Marks : 40

Time : 2½ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** questions of the following:

2×5=10

- a) What do you mean by Okazaki fragment?
- b) What is Shine-Dalgarno sequence?
- c) Name two methods for DNA sequencing.
- d) Explain Photoreactivation.
- e) Distinguish between Z-DNA and B-DNA.
- f) What is central dogma?
- g) If one strand of DNA in the Watson–Crick double helix has a base sequence of 5'-GTCATGAC-3' what is the sequence of the complementary strand?
- h) What are introns and exons?

2. Answer any **two** questions of the following:

5×2=10

- a) Write down the full form of PCR. Discuss the steps involved in PCR.

1+4

[Turn over]

b) Describe the mechanism of nucleotide excision repair in *E coli*. 5

c) What is non-sense codon? State briefly the charging of t-RNA in *E.coli*. 1½+3½

d) Describe the method of Sanger DNA sequencing. 5

3. Answer any **two** questions of the following:

10×2=20

a) Describe the process of elongation of translation in prokaryotes. Mention any four main differences between prokaryotic and eukaryotic Translation. Name any two inhibitors of protein synthesis and their mode of action.

5+2+3=10

b) How does RNA editing contribute to protein diversity in eukaryotes? Discuss the splicing mechanism of pre m-RNA in eukaryotes. Write two differences between prokaryotic and eukaryotic transcription.

2+6+2=10

c) What is operon? What are the constituents of lac-operon? Describe the positive and negative control mechanism of lac-operon.

2+2+6=10

d) What is Ori C? Describe the process of DNA replication in prokaryotes. How does it differ from that in Eukaryotes?

1+7+2=10
