**2022**

**ZOOLOGY (Honours)**

**Paper Code : ZOOL-H-DC-14**

**[Molecular Biology]**

**(CBCS)**

Full Marks: 25 Time: Two hours

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers with their own words as far as practicable*

1. Answer any *eight* questions: ½×8=4
   a) During transcription, the DNA site at which RNA polymerase binds is called _____. (Fill in the blank)
   b) Carcinoma refers to malignant tumour of the connective tissue. (True/False)
   c) Which enzyme is called molecular scissor in genetic engineering?
   d) The function of 3′→ 5 ′ exonuclease activity of a DNA polymerase is to _____. (Fill in the blank)
   e) Which type of bond is synthesized by DNA ligase?
   f) DNA helicase remains associated with _____ subunit of DNA-polymerase holoenzyme. (Fill in the blank)
   g) Which type of mutation converts a codon specifying an amino acid into a termination codon?
   h) 'DNA→ RNA→ protein'− this relation is known as _____. (Fill in the blank)
   i) Clamp loading protein in DNA-polymerase holoenzyme is _____. (Fill in the blank)
   j) DNA gyrase is a topoisomerase. (True/False)
   k) In northern blot analysis, _____ extracted from cells or a tissue is separated by size using denaturing gel electrophoresis. (Fill in the blank)
   l) Which enzyme repairs deamination of cytosine in the DNA molecule?

2. Answer any *two* questions: 2½×2=5
   a) Write the role of $\sigma$ factor in transcription.
   b) Describe the structure of a tRNA.
   c) What do you mean by Wobble hypothesis?
   d) What are the functional differences between DNA polymerase and RNA polymerase?

3. Answer any *four* questions: 4×4=16

a) Write the nature of genetic codes.

b) Write a short note on telomerase.

c) Why p53 is called guardian of genome?

d) Write a short note on 5′ capping.

e) Describe briefly the initiation of translation in prokaryotes.

f) Write a short note on protooncogene.

g) Outline an experiment to prove that DNA replication is a semi-conservative process.

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