Roll No.: .....

Total No. of Questions : 7] [Total No. of Printed Pages : 4

PK-378

M.Sc. II Semester Biotechnology (Reg./ATKT) Examination June 2018

MOLECULAR BIOLOGY

Paper - BT-203

Time Allowed : Three Hours] *[Maximum Marks : 85*

Note : Attempt all questions as directed.

Section - A

(Objective Type Questions)

Q.1. Choose the correct answer: 5×2=10

i) Unwinding of DNA is done by

(a) Helicase (b) Ligase

(c) Hexonuclease (d) Topoisomerase

ii) Translation occurs in the

(a) Nucleus (b) Cytoplasm

(c) Nucleolus (d) Lysosome

iii) RNA required for the protein synthesis

(a) mRNA (b) tRNA

(c) rRNA (d) All of these

iv) The sugar in RNA is _____ the sugar in DNA is _____

(a) deoxyribose, ribose

(b) ribose, deoxyribose

(c) ribose, phosphate

(d) ribose, uracil

v) In an operon the location of the regulatory region occurs ____ the structural genes.

(a) after (b) with in

(c) before (d) none of the above

Section-B

(Short Answer Type Questions)

5×5=25

Q.2. Answer any five of the following questions:

a) Discuss nature of gene.

b) Describe transcription.

c) Describe process of protein synthesis.

d) Discuss control of gene expression in eukaryotes.

e) Name different enzymes involved in replication of DNA and its functions.

f) What is cap and tail of mRNA?

g) What is trp operon?

h) What are okazaki fragments?

i) What forces maintain the structure of a DNA duplex?

j) Explain 'RNAi.'

Section-C
(Long Answer Type Questions)

5×10=50

Q.3. Describe the chemical structure and base composition of nucleic acids.

OR

Describe TM and lot curves and their applications in genome study.

Q.4. Describe regulation of gene expression in prokaryotes and eukaryotes.

OR

Describe conservative, semi-conservative and dispersive models of DNA replication.

Q.5. Differentiate between translation and transcription in detail.

OR

Describe the post-transcriptional processing of tRNA, rRNA and mRNA.

Q.6. Describe the process of induction in the trp and arp operon.

OR

What is Anti-sense Technology and its application?

Q.7. Write a detail note on non-ribosomal polypeptide synthesis, antibiotic inhibitors and translation.

OR

Define an operon and describe lac operon. The trp operon is an inducible operon true or false and explain.

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