



HEI-3

Seat No. _____

M. Sc. (Biotech.) (Sem. I) (CBCS) Examination

November / December – 2017

BT-103 : Molecular Biology

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

1 Answer the following : (any **seven** out of Ten, each of **14** **2** marks)

- (1) What is central dogma of molecular biology?
- (2) What is translation?
- (3) What are chromosomes?
- (4) What is site of transcription and translation in bacteria?
- (5) What is heterochromatin?
- (6) Define "core histone".
- (7) In lampbrush chromosomes, the loops are made up of _____ and _____.
- (8) Beta-galactosidase cleaves lactose into _____ and _____.
- (9) State the role of mRNA in translation.
- (10) What is a promoter?

2 Answer the following : (any **two** out of Three, each of **14** **7** marks)

- (a) Explain in detail packaging of DNA in nucleosomes.
- (b) What is C-Value paradox? Discuss.
- (c) Write on multigene families with divergent numbers.

- 3** Answer the following : (each of **7** marks) **14**
- (a) Write a note on excision repair
 - (b) Write a note on "Double strand break repair in prokaryotes".

OR

- 3** Answer the following : (each of **7** marks) **14**
- (a) Explain structure of RNA Polymerase in Prokaryotes and Eukaryotes
 - (b) Explain with justification, major factors which influence recognition of Promoter.

- 4** Answer the following : (each of **7** marks) **14**
- (a) Describe initiation process in protein synthesis.
 - (b) Genetic code is universal. Comment

- 5** Answer the following : (any **two** out of four, each of **7** marks) **14**
- (a) What is operon model of regulation? Explain inducible operon with suitable example.
 - (b) Explaining the basic logic behind the regulation, display various levels of control.
 - (c) Write note on: Gene silencing.
 - (d) Write a short note on histidin operon.