

**Biyani girls colleges**  
**B.Sc. Part II Biotech.**  
**Molecular genetics (2015-2016)**

**Time:3hr**

**Max marks:**

50

Question no 1 is compulsory. Attempt any five question in all, selecting one question from each section.

1. Answer the following in short-

- a) What is Rho factor?
- b) What is meant by operon?
- c) Who discovered PCR and when?
- d) t RNA is linked to an amino acid at which place?
- e) What is primer?
- f) What is binary vector?
- g) What is central dogma?
- h) Who discovered conjugation?
- i) What is Z DNA?
- j) What is stop codon? Give all the stop codon.  
(1x10)

**Section A**

2. What is genetic code? Give an account of the properties of the genetic code.  
(10)

3. Describe the process of DNA replication in eukaryotes and list out the different enzymes involved in DNA replication. (7+3)

**Section B**

4. What is RNA processing? Give an account of processing of m RNA, r RNA and t RNA.  
(10)

5. write short notes on any two-

- a) Post translational modification of proteins.
- b) Ribosome structure and its function.

c) comparison of initiation of translation in prokaryotes and eukaryotes (5+5)

## Section C

6) describe chromosomal mutation and its different types.  
(10)

7) Write short notes on

a) Plasmid as cloning vector    b) Transformation in bacteria  
(5+5)

## Section D

8. Explain the preparation of c DNA and genomic library and how they both are useful for DNA cloning. (10)

9. Write short notes on a) Bacterial gene cloning b) Restriction endonuclease (5+5)

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1. Answer the following in short-
    - a) Define allele.
    - b) What is law of segregation ?
    - c) What is translocational mutation?
    - d) What is reverse transcription?
    - e) Write name of two bacteria which produce colicins.
    - f) What are frame shift mutation?
    - g) What is the function of rho factor in transcription?
    - h) What are okazaki fragment?
    - i) Who discovered blood group?
    - j) Write example of multiple allele.
- (1x10)

**Section A**

2. Differentiate between prokaryotic and eukaryotic replication.  
(5+5)
3. Describe in detail Watson and crick model of DNA.  
(10)

**Section B**

4. Explain the following
    - a) RNA processing
    - b) RNA polymerase and its promoters
- (5+5)
5. Explain the molecular mechanism involved during transposition and nonhomologous recombination. (10)

**Section C**

6. Write short notes on
    - a) Complementation test
    - b) Multiple allele
- (5+5)
7. Describe regulation of protein synthesis with the help of Lac operon model.  
(10)

### **Section D**

8. Write brief note on

a)PCR

b) DNA cloning

(5+5)

9.What are plasmid? Give a brief account of replication, transfer and recombination of plasmids. (2+8)