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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN  
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]  
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.



**Question Paper Code: 9007**

B.E. / B.Tech. DEGREE SUPPLEMENTARY EXAMINATIONS – FEB. / MAR. 2020

Third Semester

Biotechnology

U15BT302 – GENETICS AND MOLECULAR BIOLOGY

(Regulation 2015)

Time : Three Hours

Maximum : 100 Marks

Answer ALL the questions

PART – A

(10 x 2 = 20 Marks)

1. Draw the structure of DNA.
2. Comment on different forms of DNA.
3. Differentiate transition and transversion.
4. Write short note on frame shift mutation.
5. What do you mean by semi conservative replication?
6. List out the proteins involved in DNA replication.
7. Define Okazaki fragment.
8. What is degeneracy of code? Give examples.
9. Pen down the role of histone modification in gene regulation.
10. Illustrate the levels of gene regulation in prokaryotes.

PART – B

(5 x 13 = 65 Marks)

11. a) What is meant by Linkage and Crossing over? What effect does the crossing over have on Linkage? How does Linkage affect inheritance?

(OR)

- b) Explain Mendalian principles of genetics with suitable examples.
12. a) Describe the molecular basis of DNA damage and the repair mechanisms.
- (OR)
- b) What are mutations? List out the various types of mutation. Discuss in detail the consequence of gene mutations in relation to disease with any four examples.
13. a) Briefly describe the replication in eukaryotes.
- (OR)
- b) Explain in detail about Eukaryotic transcription.
14. a) Explain initiation of translation and post translation modifications in eukaryotes.
- (OR)
- b) Explain in detail about wobble hypothesis.
15. a) Discuss in detail the lac operon system and its regulatory components.
- (OR)
- b) Describe the regulation of gene expression in prokaryotes.

PART – C

(1 x 15 = 15 Marks)

16. a) What is chromosome theory of inheritance with T.H. Morgan experiment?
- (OR)
- b) Explain the different stages in transcription. Add a note on regulation of transcription.
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