Dr Trabh Chaya

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY

T3 EXAMINATION, 2015

B.TECH – Bioinformatics (Semester II)

COURSE NAME: Molecular Genetics MAX.MARKS:35

COURSE CODE: 10B11BI411 MAX.TIME: 2 HRS

Note: Carrying of mobile phones during examinations will be treated as a case of unfair means.

Section A (2 Marks each; 2X5=**10 Marks**)

1. Justify the statement *"gene regulation maintains internal flexibility in bacteria"*.
2. Write a note on enhancers and insulators.
3. What are regulatory genes and regulatory elements?
4. Explain role of P-bodies in control of gene expression.
5. What do you understand by Wobble hypothesis?

Section B (5 marks each; 5X5=**25 Marks**)

6. Discuss in detail how *trp* operon in E. coli is regulated through attenuation?
7. What are riboswitches? Give detailed mechanism of their involvement in control of expression of a gene.
8. How methylation and acetylation processes affect gene expression? Give mechanism of control of flowering in *Arabidopsis* by FLD (a gene that encodes a deacetylase enzyme).
9. Explain in detail chain elongation step of protein synthesis giving its diagram.
10. What are guide RNAs and what three regions they have? Explain mechanism by which they edit RNA sequence.