



## Unit 5 Regulation of gene Expression in Prokaryotes and Eukaryotes

No. of Lectures: 12

- 5.1 Principles of transcriptional regulation, regulation at initiation with examples from *lac* and *trp* operons
- 1.2 Sporulation in *Bacillus*
- 1.3 Yeast mating type switching
- 5.4 Changes in Chromatin Structure - DNA methylation and Histone Acetylation mechanisms

(Chapter 16, *Molecular Biology of Gene* by Watson JD, Baker TA, Bell SP, Gann A, Levine M, Losic, R, 5<sup>th</sup> Ed., Pearson Publication, 2004, Pages:483-526)

## PRACTICALS

MARKS: 50

1. Study of types of DNA and RNA micrographs and model / schematic representations
2. Study of semiconservative replication of DNA through micrographs / schematic representations
3. Isolation of total DNA from *E. coli*
4. Estimation of salmon sperm / calf thymus DNA using colorimeter (diphenylamine reagent) or UV spectrophotometer ( $A_{260}$  measurement)
5. Estimation of RNA using colorimeter (orcinol reagent) or UV spectrophotometer ( $A_{260}$  measurement)

## SUGGESTED READINGS

1. Watson JD, Baker TA, Bell SP, Gann A, Levine M and Losick R (2008) *Molecular Biology of the Gene*, 6<sup>th</sup> edition, Cold Spring Harbour Lab. Press, Pearson Publication
2. Becker WM, Kleinsmith LJ, Hardin J and Bertoni GP (2009) *The World of the Cell*, 7<sup>th</sup> edition, Pearson Benjamin Cummings Publishing, San Francisco
3. De Robertis EDP and De Robertis EMF (2006) *Cell and Molecular Biology*, 8<sup>th</sup> edition. Lippincott Williams and Wilkins, Philadelphia
4. Karp G (2010) *Cell and Molecular Biology: Concepts and Experiments*, 6<sup>th</sup> edition, John Wiley & Sons. Inc.

## ONLINE READING MATERIAL

1. <http://www.ebooks-share.net/molecular-biology-of-the-gene-6th-edition/>