

Girraj government college ,(autonomous),nizamabad
B.ScIII year syllabus
Semester: VI
Subject: biochemistry
Module:VI (MOLECULAR BIOLOGY)

UNIT- DNA Replication

Organization of genome in prokaryotes and eukaryotes. experimental evidences to prove nucleic acid as genetic material. Nature and structure of the gene. DNA replication – models of replication. Meselson-stahl's experimental to proof for semi-conservative model. DNA polymerase I,II,III of E.Coli, helicases, topoisomerases, primase, ligase. Bidirectional replication model. Okazaki fragments, leading strand and lagging strands of DNA synthesis. Inhibitors of DNA replication.

UNIT-II TRANSCRIPTION

Transcription – RNA synthesis, RNA Polymerases of prokaryotes. Promoters, Initiation – sigma factors and their recognition sites. Elongation – role of core enzyme. Termination – rho dependent and rho independent. RNA pol I,II AND III of eukaryotes. transcriptional events in eukaryotic m- RNA synthesis, post Transcriptional modifications of eukaryotic m- RNA. Inhibitors of RNA synthesis.

UNIT-III TRANSLATION AND REGULATION OF GENE EXPRESSION –I

INTRODUCTION TO PROTEIN SYNTHESIS-genetic code, structure of t-RNA, deciphering of genetic code, nirenberg's khorana's experiments, wobble hypothesis, degeneracy of genetic code. Regulation of prokaryotic gene expression –induction and repression.

UNIT-IV TRANSLATION AND REGULATION OF GENE EXPRESSION-II

Protein synthesis-activation of amino acids (acyl t-RNA synthetase) . ribosome structure . inhibition ,elongation,and termination of Protein synthesis. Post translational modifications – signal hypothesis. Inhibitors of Protein synthesis. Lac operon , catabolite repression. Tryptophan operon and attenuation.