

SARDAR PATEL UNIVERSITY
Programme: BSC (ZOOLOGY)
Semester: VI
Syllabus with effect from: November 2013

Paper Code: US06CZOO05	Total Credit: 3
Title Of Paper: Biotechnology	

Unit	Description in detail	Weighting (%)
1	DNA identification of genetic material : Direct and indirect evidences for DNA and RNA Chemical nature of genetic material : structure of DNA Replication of DNA: stage of DNA replication in cell cycle, enzyme of DNA metabolism, DNA replication in Prokaryotes [E coli] and Eukaryotes. Taylor's experiment, polymorphism in DNA Types of non genetic RNA Biosynthesis of protein, Component of protein synthesis [amino acid, DNA, RNA, Ribosome, and enzymes]. Mechanism of protein synthesis in 70S ribosome and 80S ribosome. Regulation of gene action in prokaryotes- enzymatic and genetic level.	
2	Vectors Restriction and ligases enzymes. C-DNA. Probes [production, labeling and rules] PCR Isolation of gene [specific protein, tissue using DNA and RNA probe]	
3	Animal cell and tissue culture: disaggregation, isolation, slide, flask, flask, organ culture, whole embryo culture. In vitro fertilization [IVF]: types and causes of infertility, assessment of patient, treatment of patient for IVF, oocyte recovery, preparation of semen, oocyte culture and IVF, fertilization, embryo transfer. Superovulation, IVF and embryo transfer.	
4	Gene transfer: introduction, transfection of targeted genes. Transgenic animals, Biotechnology in medicine. Cancer: mutation of the tumor, morphology of cancer cells, carcinogenesis, oncogenesis.	

Basic Text & Reference Books:

- Molecular biology and genetic engineering: P K Gupta.
- The element of biotechnology: P S Verma.
- Animal biotechnology: M M Ranga
- Biotechnology fundamentals and applications: S S Purohit.

