

GENERIC ELECTIVES/INTER DISCIPLINARY

CREDIT: 06, EACH, MARKS: 100

BIO TECHNOLOGY

PAPER-1

Unit-I Biotechnology – a historical perspective, scope of biotechnology in developing countries, application of biotechnology in agriculture, pharmaceutical health, industry and environmental biotechnology

Unit-II

Plant biotechnology: cellular differentiation, totipotency, Organogenesis, Embryogenesis, germplasm conservation. application of tissue culture. Transgenic plant

Unit-III

Animal biotechnology : cloning ,invitro fertilization(test tube babies), human genome project, gene therapy. Transgenic animal, ethical issues .

Unit-IV

Basic of biotechnology: prokaryotic and Eukaryotic cell structure and function. Nucleus, chromosome, nucleic acid and (DNA and RNA) and proteins, Gene concept, DNA replication, RNA- Transcription and protein translation.

Unit- v

Project work

10+5+5

Students shall prepare a 1000 words project from the syllabi topics under the supervision by the biological lecturers.

Ten marks for content of the work and five marks for vice verse and five marks for presentation.

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Unit-I

Microbial Genetics: Bacterial conjugation, transformation and transduction plasmid: Ti Plasmid. Antibiotic resistance. HIV, Cancer

Unit-II

Polymerase chain reaction. Nucleic acid hybridization, blotting techniques (Southern and northern blotting).

Unit-III

Genetics engineering: Plasmid as vectors and cloning, Restriction enzymes, Molecular markers (RAPD, RFLP, AFLP).

Unit-IV

Recombinants DNA technology and Application of r-DNA technology, construction of C-DNA, genomic libraries, DNA fingerprinting techniques,

Unit- v

Project work

10+5+5

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Ten marks for content of the work and five marks for vice verse and five marks for presentation.

SUGGESTED REFERENCES:

1. *A Text Book of Biotechnology* – R. C. Dubey, S. Chand publication.
2. *Biotechnology* – P. K. Gupta, Rostogi Publication
3. *Biotechnology*-U.satyanarayana, Books and Allied Pvt.Ltd, Kolkatta
4. *Advanced Biotechnology*-Dr.R.C Dubey,S.chand publication
5. *Molecular Biology and Biotechnology*-K.G.Ramawat & Dr.Shaily Goyal, S.Chand publication
6. *Modern concepts of Biotechnology*-H.D.kumar,S.chand publication
7. *Biotechnology*-B.D.Singh &R.P.Singh,kalyani publication
8. *Comprehensive Biotechnology*-K.G.Ramawat & Dr.Shaily Goyal,S.Chand publication.