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CBSE's Class 12 biotech released

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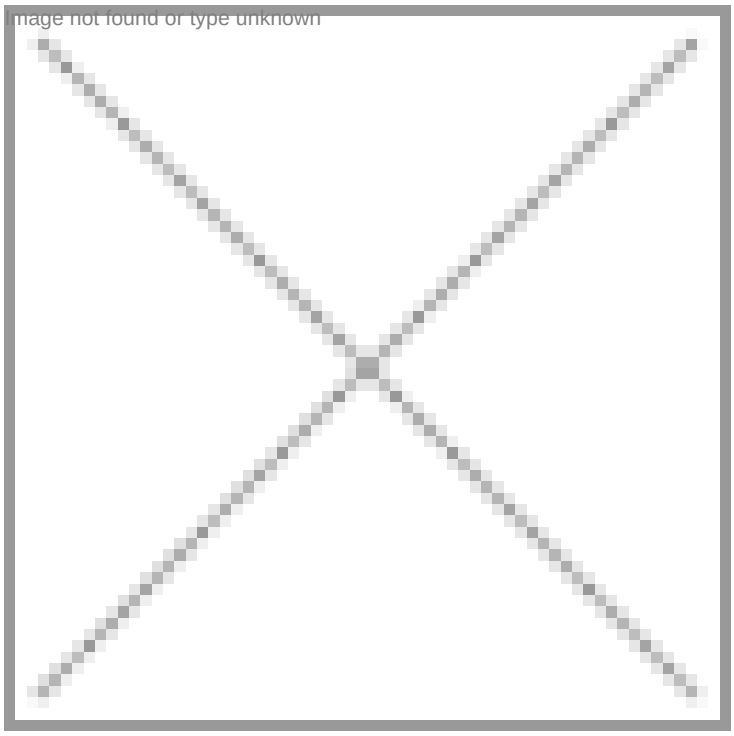

In a path-breaking move, the Central Board of Secondary Education (CBSE) had introduced biotechnology as an optional subject in Class XI from the academic year in 2002. This year, these students move to Class XII and the CBSE has finalized the syllabus for the course. A committee headed by Prof. K Kannan, dean school of biotechnology, Guru Gobind Singh Indraprastha University has prepared the syllabus. CBSE has trained nearly 100 teachers in the subject.

Some 125 schools out of some 2,600 schools affiliated to the CBSE are offering the biotechnology course. Nearly 250 students across the country have opted for it in the first year. The high cost of setting up exclusive laboratory for this course, approximately four lakh rupees per school has restricted the number of schools offering biotechnology as a subject.

BioSpectrum has a copy of the Class 12 biotech syllabus.

The Unit V is on protein and gene manipulation. In this the Chapter I: Protein structure and engineering has categories such introduction to world of proteins, 3-D shape of proteins, structure-function relationship in proteins, purification of proteins, characterization of proteins, protein based products, designing products, proteomics and
review questions.

Chapter II: Recombinant DNA technology. It has introduction, tools of rDNA technology, making recombinant DNA, DNA library, introduction of rDNA into host cells, identification of recombinants, polymerase chain reaction (PCR), DNA probes, hybridization techniques, DNA sequencing, site-directed mutagenesis, review questions.

Chapter III: Genomics and bioinformatics. It has introduction, genome-sequencing projects, gene prediction and counting, genome similarity, SNPs and comparative genomics, functional genomics, history of bioinformatics, sequences and nomenclature, information sources, analysis using bioinformatics tools, review questions.

The unit VI is on cell culture technology. Here Chapter I is on microbial culture and application. This chapter has introduction, microbial culture techniques, measurement and kinetics of microbial growth, scale-up of microbial process, isolation of microbial products, strain isolation and improvement, applications of microbial culture technology, bioethics in microbial technology and review questions.

Chapter II is on plant cell culture and applications. It has introduction, cell and tissue culture techniques, applications of cell and tissue culture, gene transfer methods in plants, transgenic plants with beneficial traits, diagnostics in agriculture and molecular breeding, biotechnology in food and beverage industry, bioethics in plant genetic engineering and review questions.

Chapter III is on animal cell culture and applications. It has introduction, animal cell culture techniques, characterization of cell lines, scale-up of animal culture process, applications of animal cell culture, stem cell technology, bioethics in animal genetic engineering and review questions