

HOLIDAY ASSIGNMENT

BIOTECHNOLOGY

ClassXII

Chapter 1: Recombinant DNA technology

- Q.1. Write importance of rop in E. Coli vector ?
- Q.2. What is rDNA ? List its features. How do enzymes restriction endonucleases and DNA ligase help in its formation ?
- Q.3. What is the Natural source of Agarose. Mention one role of agarose in biotechnology.
- Q.4. Why is Agrobacterium tumefaciens a good cloning vector ? Explain.
- Q.5. What is the role of Ethidium Bromide during agarose gel electrophoresis of DNA fragments ?
- Q.6. (a) Write palindromic Nucleotide reference for DNA segments 5' GAATTC 3'
(b) Name the restriction endonuclease that recognise this sequence.
(c) How are sticky ends produced ? Mention its role ?
- Q.7. If a researcher began with a sample that contained three copies of dsDNA , how many copies would he be able to generate after 27 cycles of PCR ?
- Q.8. Write two distinguishing features of pBR322 and BAC vectors.
- Q.9. Which vectors can be used to clone a fragment of DNA with the following lengths ?
(i) 4 kb (ii) 35 kb (iii) 20 kb (iv) 250 kb
- Q.10. In 1963 two enzymes responsible for restricting the growth of Bacteriophage in E coli were isolated. How did the enzymes restrict the growth of Bacteriophage ?

Chapter 2: Genomics Proteomics and Bioinformatics

- Q.1. Give important database used in routine Bioinformatics ?
- Q.2. Suggest one possible way for going about analyzing a given sequence using Bioinformatics?
- Q.3. What is the number of predicted genes in humans ?
- Q.4. How much human genome is similar to each other ?
- Q.5. Expand BLAST ? What kind of analysis can be undertaken with this search tool ?
- Q.6. Write 10 letter sequence each typical of DNA and protein.
- Q.7. What is FISH technique used for? How are fluorescent colours introduced into

chromosomes.

Q.8. Do you think in silico based prediction techniques are accurate in genomics ? Support your answer with reasoning.

Q.9. What are the main branches of genomics one can study ?

Q.10. The microarray techniques can be used to compare gene products between normal and cancer cells. Explain the principles involved in this technique with diagram ?

CBSE PROJECT HOLIDAY HOMEWORK

PROJECT WORK WAS GIVEN TO STUDENTS ON DIFFERENT TOPICS

1 STEM CELL TECHNOLOGY

2 DNA FINGERPRINTING

3 PROBIOTICS

4 GENETICALLY MODIFIED ORGANISMS

5 ROTAVIRUS VACCINE

6 ZIKA VIRUS

7 NANOTECHNOLOGY