



INDIAN SCHOOL NIZWA

Class XII Biology-Worksheet - CH-9 Biotechnology-Principles and Processes.

Q1. Observe the given sequence of nitrogenous bases on a DNA fragment and answer the following question –

5' – CAGAATTCTTA – 3'

3' – GTCTTAAGAAT – 5'

(a) Name a restriction enzyme which can recognise this DNA sequence.

(b) Write the sequence after digestion.

(c) Why are the ends generated after digestion called sticky ends?

D) A linear DNA and a plasmid have 3 recognition sites and are cleaved by restriction enzymes

Q2. Why do bacteria have restriction enzymes. Show diagrammatically a restriction enzyme its recognition & the product it produces?

Q3. Describe the various steps involved in Recombinant DNA technology with the help of a well labeled. Diagram?

Q4. What are the two core techniques that enabled the birth of biotechnology?

Q5. Explain the principle that helps in separation of DNA fragments in Gel electrophoresis.

Q6. What are molecular scissors? Explain their role.

Q7. Explain the work carried out by Cohen and Boyer that contributed immensely to biotechnology

Q8. How are restriction endonuclease enzymes named? Write examples.

Q9. Represent diagrammatically the E. coli. Cloning vector PBR 322.

Q10. How is gene Z used as a marker?

Q 11. A selectable marker is used in the section of recombinants on the basis of their ability to produce colour in presence of chromogenic substrate.

(a) Mention the name of mechanism involved.

(b) Which enzyme is involved in production of colour?

(c) How is it advantageous over using antibiotic resistant gene as a selectable marker?

Q12. Describe any three vectors less method of introducing the rDNA into a competent host cell?

Q13. What is “Insertional Inactivation”?

Q14. How will you obtain purified DNA from a cell?

Q15. In recombinant DNA technology, vectors are used to transfer a gene of interest in the host cells. Mention any three features of vectors that are most suitable for this purpose.

Q16. Why is Agrobacterium-mediated genetic engineering transformation in plants considered natural genetic engineering?