

UNIT-V: BIO TECHNOLOGY

11. BIOTECHNOLOGY

PRINCIPLES AND PROCESSES

(1 x 2) + (1 x 8) = 10 Marks

ROOT POINTS



- Biotechnology** deals with large scale production and marketing of products and processes using live organisms, cells or enzymes.
- Using recombinant DNA technology, **DNA sequences are altered** to construct noval DNA.
- This process involves the usage of restriction endonucleases, DNA ligase, Plasmid or viral vectors, expression of the foreign gene, purification of gene product.
- Molecular scissors** are the restriction enzymes which **cut the DNA** at specific locations. [IPE]
- Vectors used for **multiplying** the foreign DNA sequences are called **cloning vectors**. [IPE]
- PCR technique** is used in (i) DNA cloning (ii) gene amplification (iii) DNA finger printing. [IPE]
- Separation and purification of products before they are ready for marketing is called **down streaming processing**. [IPE]
- Processes of recombinant DNA technology:** [IPE]

(i) Isolation of DNA	(ii) Fragmentation of DNA
(iii) Isolation of desired DNA fragments	(iv) Amplification of the desired gene
(v) Ligation of the DNA fragment into a vector	(vi) Insertion of rDNA into the host cell
(vii) Obtaining the foreign gene product	(viii) Downstream processing
- Tools of recombinant DNA technology:** [IPE]

(i) Restriction enzymes	(ii) Polymerase enzymes	(iii) Ligases	(iv) Vectors	(v) Host organism
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FRUITY Qs OF IPE

(1 x 2) + (1 x 8) = 10 Marks

- Define biotechnology.
- What are molecular scissors? Where are they obtained from?
- Name any two artificially restructured plasmids.
- What is down-stream processing?
- How does one visualize DNA on an agar gel.
- Explain briefly the various processes of recombinant DNA technology.
- Give a brief account of the tools of recombinant DNA technology.

SCENT BOXES- MEMORY HINTS

FOR SELECTIVE QUESTIONS

116. How does one visualize DNA on an agar gel.

[AP 15,20]

- A. The separated DNA fragments can be visualised only after staining the DNA with a compound known as **ethidium bromide**, followed by **exposure to UV radiation**.

😊 SCENT BOX 😊

I like ethidium bromide which gives orange colour

BABY BULLET-Q