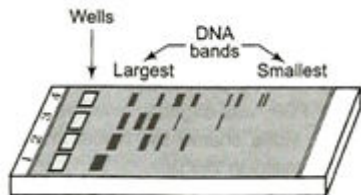


Topic :- Biotechnology Principles & Processes

- 2 (c)
Herbert Boyer discovered that restriction enzymes have the capability of cutting DNA strands in a particular fashion, which left what has become known as sticky ends on the strands
- 3 (b)
A Southern blot.
A restriction fragment containing a specific gene of interest can be identified by gel electrophoresis followed by transferring of DNA to a membrane as a solid support matrix using a procedure called a Southern blot
- 4 (d)
In biolistic or gene gun method, cells are a high velocity micro-particles of gold or tungsten coated with DNA in plants. Important crop plants like maize, rice and wheat have now been transformed by this method
- 5 (a)
Electrophoresis.
A molecule of DNA can be cut into fragments by the enzyme restriction endonucleases. These fragments of DNA can be separated by a technique of gel electrophoresis. In this process the smallest segment of DNA travel towards anode (+ ve electrode), farthest away from the wells



- 10 (a)
RNA is removed by treatment with ribonuclease
- 12 (d)

All statements are correct

Restriction Enzymes	Source	Recognition Sequence and Site of Cleavage	Product
<i>Eco</i> RI	<i>Escherichia coli</i> RY 13	$ \begin{array}{c} \downarrow \\ 5'-G-A-A-T-T-C-3' \\ 3'-C-T-T-A-A-G-5' \\ \uparrow \end{array} $	$ \begin{array}{c} G \quad A-A-T-T-C \\ \quad \\ C-T-T-A-A \quad G \\ \text{Sticky ends} \end{array} $

13 **(b)**
 During annealing two oligonucleotide primers hybridise to each of single stranded template DNA in presence of excess of synthetic oligonucleotides

16 **(d)**
 In gel electrophoresis a molecule of DNA can be cut into fragments by the enzyme restriction endonuclease. DNA fragments move towards the anode according to their molecular size through the agarose gel

The separated DNA fragments can be observed only after staining them with a solution of ethidium bromide. The bright orange coloured bands of DNA can be seen only under UV light. These bands of DNA fragments are cut out from the gel and extracted by using convenient technique. This step is called elution

19 **(d)**
 Microorganisms can be grown in the bioreactors by support growth system and suspended growth system

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	A	C	B	D	A	A	A	B	B	A
Q.	11	12	13	14	15	16	17	18	19	20
A.	D	D	B	D	A	D	D	C	D	A