

**Topic :- Biotechnology Principles & Processes**

- 1 **(d)**  
*amp*<sup>R</sup> (amplification resistance gene) and *tet*<sup>R</sup> (tetracycline resistance gene) are antibiotic resistance genes
- 4 **(d)**  
Restriction endonucleases cleave DNA molecules only at specific nucleotide sequence called restriction sites. DNA ligase enzymes is used to joins bits of DNA
- 8 **(a)**  
Mobile genetic element is broadly any genetic element capable of moving itself, with or without duplication, from one site in a genome to another. Mobile genetic elements include plasmids, viruses, transposable genetic elements (transposons), short interspread elements, pathogenicity islands and so on. The term 'transposon' was introduced **RW Hedges** and **AE Jacob** in 1974, 'controlling elements' or jumping genes, discovered by **Barbara McClintock** (1950) in maize
- 11 **(b)**  
Special sequence in the DNA recognized by restriction endonuclease is called palindromic nucleotide sequence.  
Restriction endonuclease recognizes palindromic sequences in DNA and cuts them  
The palindromes in DNA are base pair sequences that are the same when read forward (left to right) or backward (right to left) from a central axis of symmetry  
For example  
(i) 5' - G A A T T C - 3'  
3' - C T T A A G - 5'

(ii) 5' – G G A T C C -3'  
3' – C C T A G G -5'

13 **(b)**

Identification of DNA with desirable gene

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Introduction of DNA into host to form recombinant DNA

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Maintenance of DNA in host and gene cloning

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Gene transfer

14 **(b)**

*Recombinant DNA technology involved the following steps*

(i) Isolation of DNA

(ii) Fragmentation of DNA by restriction endonucleases

(iii) Isolation of a desired DNA fragment

(iv) Amplification of the gene of interest

(v) Ligation of the DNA fragment into a vector

(vi) Insertion of recombinant DNA into the host

(vii) Culturing the host cells on a suitable medium at a large scale

(viii) Extraction of the desired gene product

(ix) Downstream processing of the products as finished product, ready for marketing

18 **(c)**

A - Competency

B - Calcium

C - microinjection method

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