

EXERCISE

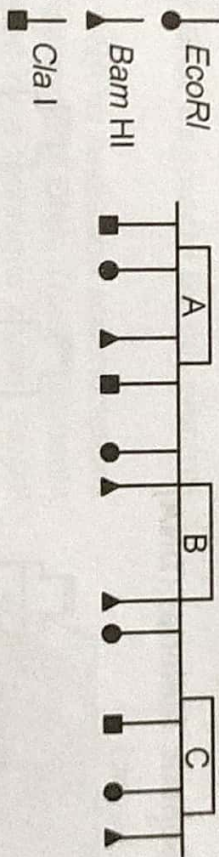
1. A researcher identifies a naturally occurring variant possessing characteristics of interest. This plant is selectively bred. This is an example of
 - (1) Traditional plant breeding
 - (2) Transgenic technology
 - (3) Mutant selection
 - (4) Cross breeding
2. Bacteria possessing restriction endonucleases remain
 - (1) Affected by bacteriophages
 - (2) Resistant to bacteriophages
 - (3) Resistant to drugs
 - (4) Resistant to heat

3. Introduction of foreign genes for improving genotype is called
(1) Biotechnology
(2) Tissue culture
(3) Genetic engineering
(4) Both (1) & (3)
4. The linking of antibiotic resistance gene with plasmid vector became possible with
(1) DNA polymerase
(2) Exonuclease
(3) DNA ligase
(4) Endonuclease
5. Chemical knives of molecular biology are
(1) Restriction endonucleases
(2) Exonuclease
(3) Reverse transcriptase
(4) Ligase
6. Plasmids are extra-chromosomal genetic material found in
(1) Algae
(2) Mammalian cell
(3) Bacteria
(4) Viruses
7. Which of the following bonds are formed by action of DNA ligase?
(1) Sugar-phosphate bond
(2) Phosphodiester bond
(3) Phosphate-phosphate bond
(4) Both (1) & (2)
8. In recombinant DNA technology, a plasmid vector is cleaved by
(1) Modified DNA ligase
(2) A heated alkaline solution
(3) The same enzyme that cleaves donor DNA
(4) Different enzyme that cleaved the donor DNA
9. Who is given the credit for constructing first artificial recombinant molecule?
(1) Hargobind Khorana
(2) Stanley Cohen and Herbert Boyer
(3) Linus Pauling
(4) Arber and Nathans
10. The specific DNA sequence where *EcoRI* cuts is
(1) GATTCG
(2) GAATTC
(3) GTTCAA
(4) TTCAA

11. Identify the plasmid among following
- (1) *Hind III*
 - (2) pBR322
 - (3) λ -phage
 - (4) Both (2) & (3)

12. Plasmids are important in biotechnology because they contain
- (1) Recognition sites on recombinant DNA strands
 - (2) Provirus incorporated into the host DNA
 - (3) A vehicle for insertion of recombinant DNA into bacteria
 - (4) Surface for respiratory process in bacteria

13. If only gene 'B' is to be isolated from given fragment of DNA, what is the choice of enzyme?



- (1) *Bam HI*
- (2) *EcoRI* & *Bam HI*
- (3) *EcoRI* only
- (4) All the three enzymes

14. If gene of interest was inserted at *Sal I* site in pBR322 the resulting plasmid will confer resistance to
- (1) Ampicillin
 - (2) Tetracycline
 - (3) Kanamycin
 - (4) Both (1) & (3)

15. Tumor inducing plasmid transforms
- (1) Nematodes
 - (2) Bacteria
 - (3) Fungi
 - (4) Several dicot plants

16. A bacterium commonly used in plant genetic engineering is
- (1) *E. coli*
 - (2) *Agrobacterium*
 - (3) *Mycobacterium*
 - (4) *Rhizobium*

17. In RDT, the term vector refers to

- (1) Plasmids that can transfer foreign DNA into a living cell
- (2) Plasmids that can cut DNA at specific bases
- (3) Plasmids that can join DNA at specific bases
- (4) Plasmids that can degrade harmful proteins

18. The tumor inducing capacity of _____ is located in large extra-chromosomal plasmid called Ti plasmid. Choose the option which **correctly** fills the blanks .
- | | |
|------------------------------|--------------------------------------|
| (1) <i>Thermus aquaticus</i> | (2) <i>Salmonella typhimurium</i> |
| (3) <i>E. coli</i> | (4) <i>Agrobacterium tumefaciens</i> |
19. Genetic material of retroviruses is
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|-------------|-----------|
| (1) DNA | (2) RNA |
| (3) Protein | (4) ssDNA |
20. Characteristics of vector include all, **except**
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|---|
| (1) Presence of 'ori' |
| (2) Presence of antibiotic resistance gene as selectable marker |
| (3) Large size |
| (4) MCS |

21. Which is **not** true for all cloning vectors?
- (1) These are independent of the control of chromosomal DNA
 - (2) These get integrated into chromosomal DNA after transformation
 - (3) They contain genes for antibiotic resistance or some selectable marker
 - (4) They have specific DNA sequence called origin of replication.
22. M 13 can be classified as which kind of vector?
- (1) Cosmid
 - (2) YAC
 - (3) BAC
 - (4) Bacteriophage
23. Boliver and Rodriguez developed
- (1) Shuttle vector
 - (2) pBR322
 - (3) pUC19
 - (4) Both (1) & (2)
24. Shuttle vectors are **not** exemplified by
- (1) YEP
 - (2) Ti plasmid
 - (3) BAC
 - (4) Both (2) & (3)
25. Which vector is used to introduce genes into dicots?
- (1) Electroporation
 - (2) Electrophoresis
 - (3) Ti plasmid
 - (4) Microinjection
26. Addition of antibiotics in chemical engineering process helps in
- (1) Mixing and aeration of media
 - (2) Maintaining anti-foaming conditions
 - (3) Maintaining aseptic conditions
 - (4) Maintenance of constant temperature and pH
27. Genes for which of the following can serve as selectable marker?
- (1) β -galactosidase
 - (2) Ampicillin
 - (3) Tetracycline
 - (4) All of these

28. When the addition of foreign DNA is made in the coding sequence of β -galactosidase in pUC19, this results in
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|------------------------------|--------------------|
| (1) Direct DNA injection | (2) Transfection |
| (3) Insertional inactivation | (4) Transformation |
29. Isolation of genetic material from fungal cells involves the use of
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|---------------|----------------|
| (1) Lysozyme | (2) Cellulase |
| (3) Chitinase | (4) Polymerase |
30. Technique used to separate fragments of digested DNA is
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|---------------------|---------------------|
| (1) Electroporation | (2) Elution |
| (3) Spooling | (4) Electrophoresis |