



# BIOLOGY

## BOOKS - SHARAM PUBLICATION

### BIOTECHNOLOGY AND IT'S APPLICATIONS

#### EXERCISE

1. Yeast is used in the preparation of

A. Cheese

B. Ethyl alcohol

C. Acetic acid

D. Simian virus 40

**Answer: Curd**



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**2. Antibiotics are:**

A. Toxins

B. Drugs

C. Syrups

D. Plants



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**3. First antibiotics isolated was:**

A. Streptomycin

B. Erythromycin

C. Penicillin

D.



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4. Who established the scientific basis of vaccination?

A. Edward Jenner

B. Joseph Lister

C. Cesar Milestone

D. Louis pateur



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5. Humulin is:

- A. A human insulin
- B. A from of chitin
- C. A digestive enzyme
- D. A powerful antibiotic



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6. *Escherichia coli* is used in biological research because:

- A. It is easily available
- B. It can be easily cultured
- C. It is easy to handle
- D. It can easily multiply in the host



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7. Bt cotton is

A. Transgenic plant

B. Mutaled plant

C. Cloned plant

D. Hybrid plant



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**8. Escherichia coli is**

A. Gut bacterium

B. Soil bacterium

C. Thermal bacterium

D. Both a and b



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9. Recombinant DNA technology is also called as:

A. Biotechnology

B. Modern biotechnology

C. Genetic engineering

D. Transgenic technology



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10. A genetically modified crop is:



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11. Restriction endonuclease is employed for cutting :

A. A single stranded DNA

B. Double -stranded DNA

C. RNA fragment

D. m-RNA



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**12.** Chemical knives/ molecular scissors of DNA are:

A. Endonucleases

B. Polymerases

C. Ligases

D. Transcriptases



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**13.** Two bacteria most useful in genetic engineering are:

- A. Phizobium and Azetobacter
- B. Escherichia and Agrobacterium
- C. Rhizobium and Diplococcus
- D. Nitrosomous and klebsiella



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14. Which is related to genetic engineering?

A. Plastid

B. Plasmid

C. Heterosis

D. Mutation



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**15. Abnormal gene is replaced by normal gene through:**

A. gene therapy

B. Gene cloning

C. Gene mutation

D. Gene ligation



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**16.** In genetic engineering, which is used for transfer of genes from one cell to another?

A. Vector

B. Probe

C. Plasmid

D. Virus



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17. Introduction of foreign gene for improving genotype is called:

- A. Tissue culture
- B. Genetic engineering
- C.
- D. Vernalisation



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**18. cDNA is :**

A. Circular DNA

B. coiled DNA

C. Cytoplasmic DNA

D. Complementary DNA



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**19.** An extrachromosomal DNA which can be used as vector in gene cloning is called :

A. Transposon

B. Intron

C. Plasmid

D. Exon



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20. Patent is not granted for:

A. A novel invention

B. An invention having an industrial application

C. A discovery made by previously existing knowledge

D. An invention having an inventive step



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21. Golden rice is produced by rice plant having a transgene encoding an enzyme in the biosynthesis pathway of:

A. Carotene

B. Glycophosate

C. Luciferin

D. Bt protein



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22. The super mouse is a genetically modified animal with :

- A. Inulin transgene
- B. Growth hormone transgene
- C. Lipid biosynthesis transgene
- D. Steroid hormone transgene



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**23.** Which is the nodal centre for Indian biosafety network?

A. department of biotechnology

B. Department of science and Technique

C. Indian Agricultural research institute

D. Department of Forest and environment



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## EXAMPLE

1. Enzymes that cut the DNA at specific sites are called \_\_\_\_\_.



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2. What is Flavr Savr?



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3. Which organism's gene is present in Bt cotton?



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4. What is cleaned by *Pseudomonas putida*?



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5. Natural genetic engineer is :



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6. Generally which is used as vector for the transfer of genes?



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7. Which does join blunt ends of passenger and vehicle DNAs?



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8. What is the basis of modern biotechnology?



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9. You have chosen a plasmid as vector for cloning your gene. However, this vector plasmid lacks a selectable marker. How would it affect your experiment?



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10. What is called the technique of insertion of a desired gene into DNA of plasmid vector?



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11. Which cells are transformed by  $T_1$  plasmid?



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12. Which DNA is formed from RNA?



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**13.** Polymerase chain reaction is most useful in

:



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**14.** Which transgenic plant is rich in Vitamin A?



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**15.** Who discovered Recombinant DNA technology?



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**16.** What is the first restriction endonuclease ?



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**17.** Who were awarded nobel prize for the discovery of Restriction endonucleases?



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**18.** What is transformation?



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**19.** What is hybridoma cell?



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**20.** Who discovered the plasmid vectors ?



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**21. Fill up the blank**

The use of novel biological resource of a sovereign country without its due permission is known as \_\_\_\_\_



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**22. Fill up the blank**

The Bt protein is encoded by a gene \_\_\_\_\_

present on a plasmid.



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**23. Fill up the blank**

The \_\_\_\_\_ is the most widely used broad spectrum herbicide world over.



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**24. Fill up the blank**

The technique \_\_\_\_\_ is used to detect the



presence of HIV antigen in suspected AIDS patient.



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**25. Fill up the blank**

\_\_\_\_\_ is used as anti-cancer or chemotherapy drug.



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## 26. Fill up the blank

The recombinant human insulin is termed as \_\_\_\_\_



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## 27. Fill up the blank

Severe Combined Immunodeficiency (SCID) is caused due to a failure of synthesis of an enzyme \_\_\_\_\_



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## 28. Fill up the blank

Herbert Boyer and Stanley Cohen (1973) first created \_\_\_\_\_



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## 29. Fill up the blank

Gene transfer technique in animal cells is known as \_\_\_\_\_



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### 30. Fill up the blank

The Ti plamid \_\_\_\_\_ is the vector of choice for transfer of transgene in plant cells.



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### 31. Fill up the blank

A species of bacterium having an insectidal property is \_\_\_\_\_



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### 32. Fill up the blank

The commercial use of transgenic animals as sources of pharmaceutical product is known as \_\_\_\_\_



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### 33. Fill up the blank

The first ever cloned animal is \_\_\_\_\_



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### 34. Fill up the blank

Patents are granted for \_\_\_\_\_



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### 35. Fill up the blank

Indirect gene transfer is carried out with the help of a \_\_\_\_\_



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### 36. Fill up the blank

PCR was discovered by \_\_\_\_\_ (1985).



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### 37. Fill up the blank

Transgenic Golden Rice is enriched with  
\_\_\_\_\_



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### 38. Fill up the blank

In Bt cotton a transgenic plant, Bt refers to

\_\_\_\_\_



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### 39. Fill up the blank

The first transgenic crop was \_\_\_\_\_



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**40.** Fill up the blank

DNA fragment are joined b y \_\_\_\_\_



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**41.** Correct the underlined portion

Restricition endocucleases are present in  
viruses.



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**42. Correct the underlined portion**

Chromosomal DNA is an extranuclear DNA.



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**43. Correct the underlined portion**

The gene transferred to another organism  
artificially by technique of genetic  
enginneering is called supplementary gene.



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**44.** Correct the underlined portion

Crops which posses and express one or more transgenes through genetic engineering is called khareef crop.



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**45.** Correct the underlined portion

Production of recombinant human insulin is possible due to Pseudomonas putida.



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**46.** In ELISA techniques, enzyme polymerase are used.



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**47.** Correct the underlined portion

Bt cotton contains four transgenes.



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**48.** *Bacillus thuringiensis* is used in scavenging oil spills.



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**49.** Correct the underlined portion

Polymerase chain reaction is used in DNA synthesis.



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50. DNA fragments are joined by gyrases.



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51. Correct the underlined portion

$T_1$  plasmid is obtained by Azotobacter.



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52. Flavr Savr is a genetically modified rice.



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**53.** Humulin is carbohydrate.



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**54.** Correct the underlined portion

Bt gene which produces protein toxic to insect  
larvae is try



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**55.** Correct the underlined portion

Gaint mouse has been produces protein toxic  
to insect larvae is try.



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**56.** Enzyme required for PCR is endonucleases.



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**57.** Correct the underlined portion

Recombinant DNA technology developed  
during 1990s



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**58.** Correct the underlined portion

$T_1$  plasmid transforms cells of bacteria.



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**59.** Correct the underlined portion

In transgenics, the expression of transgene in the target tissue is known by promoter.



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**60.** Correct the underlined portion

Restriction endocucleases used widely in recombinant DNA technology are obtained from Bacteriophages.



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**61.** What are cloning vectors?



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**62.** Describe briefly the following Origin of replication



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**63.** What are cosmids?





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**64.** What is direct or vector less transfer?



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**65.** What is antisense therapy?



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**66.** Do eukaryotic cells have restriction endonucleases ?



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**67.** What are the applications of the microbe, Escherichia Coli.



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**68.** What are the advantages of Genetically Modified Organisms?



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**69.** What is the cause of adenosine deaminase deficiency in a person?



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**70.** What is golden rice?



**Watch Video Solution**

**71. What is Flavr Savr?**



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**72. What are the types of recombinant insulin?**



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**73. What is pharming?**



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**74.** Differentiate between the Plasmid and Chromosomal DNA.



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**75.** Differentiate between: Exonuclease and Endonuclease.



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