

CH-11BIOTECHNOLOGY PRINCIPLES ND PROCESSES – MCQ

1. The enzyme that cuts specifically recognition sites in the DNA is known as \_\_\_\_

a. DNA ligase b. DNA polymerase

c. reverse transcriptase d. restriction endonuclease

2. DNA can be introduced into any cell

a. Injection b. being complexed with Ca salts

c. Gel electrophoresis d. being placed along with

3. Ability of a plant or animal cell to repeatedly divide and differentiate into a complete organism is:-

(a) Cloning (b) DNA finger printing

(c) Cellular totipotency (d) mitosis

4. Restriction endonuclease is also known as –

(a) Molecular glue (b) DNA ligase

(c) DNA Polymerase (d) molecular scissors

5. Extra chromosomal small circular double stranded DNA molecule in a bacterial cell is stranded DNA molecule in bacterial cell is

(a) Plastid (b) Plasmid

(c) Mitochondrion (d) Chloroplast

6. Introduction of foreign genes into plant or animal cells using micropipettes is

(a) Electroporation (b) Chemical – mediated gene transfer

(c) microinjection (d) Particle gun

7. Which one of the following is related with genetic engineering?

(a) Mutations (b) Ribosome

(c) Mitochondria (d) Plasmids

8. In bacteria, genes for antibiotic resistance are usually located in

(a) Plasmids (b) Cytoplasm

 (c) Mitochondria (d) Nucleus

9. A technique used to make numerous copies of a specific segment of DNA quickly and accurately

(a) Translation (b) transcription

(c) Ligase chain reaction (d) polymerase chain reaction

10. The enzyme that cleaves DNA at specific sites, producing sticky ends is called

(a) Restriction endonuclease (b) Cleaving enzyme

(c) Lysing enzyme (d) Exonuclease

11. Which of the Following is a genetic vector?

(a) Plasmid (b) Phage

(c) Cosmid (d) All of these

12. Restriction endonucleases are used in genetic engineering because –

(a) They can degrade harmful proteins

(b) They can join DNA fragments

(c) They can cut DNA at specific base sequences

(d) They can cut DNA at variable sites

13.  Ideal host for the amplification of DNA molecules is

(a) Viruses (b) Plants

(c) Bacteria (d) Animals

14. Ti Plasmid naturally occurs in

(a) Agro bacterium (b) Corynebacterium

(c) Staphylococcus (d) Vibrio

15. The sticky ends of Fragmented DNA molecules are made up of

(a) calcuim salts (b) endo nuclease

(c) Un paired bases (d) methyl groups

16. Which of the following are the essential requirements for recombination?

(a) Single stranded DNA (b) DNA ligase

(c) DNA Polymerase I (d) All of the above

17. The Plasmid derived from E.Coli is

(a) PBR327 (b)PBR322

(c) both a above (d) None

18. Ti Plasmid is useful in

(a) Bringing new genes into animal cells (b) bringing new genes into plant cells

(c) to nearly any sites on a chromosome (d) bringing tumour cells into plant cells

19. Many copies of a DNA molecule in a test tube are procurred by

(a) Polymerase chain reaction (PCR) (b) Molecular chain reaction (MCR)

(c) Ephemeral chain reaction (ECR) (d) All of these

20. Bam H I, ECo R I, Sal I are the types of

(a) restriction endonucleasses (b) restraction endoxidases

(c) restriction exonucleases (d) restriction polymerases

21. Retro viruses have genetic matetial which is

(a) DNA (b) RNA (c) both DAN & RNA (d) proteins

22. Genetic engineering is possile because

(a) The phenomenon of transducation in bacteria is well understood

(b) We can see DNA by electron microscope

(c) We can cut DNA at specific sites by endonucleases like DNA ase I

(d) Restriction endonuclease purified from bacteria can be used in vitro

23. Plasmids are the suitable vectors for genetic cloning as…..

(a) They are indispendable (b) they are self replicating units

(c) They are essential for bacterial reproducation (d) none of the above

24. Which of the following is used in genetic engineering?

(a) Restrication endonuclease (b) Mycobacterium

(c) Entameha (d) Pepsin

25. The first hormone artificially produced by culturing bacteria is\_\_\_\_\_\_

(a) Insulin (b) thyroxine

(c) Testosterone (d) Adrenaline

26. When the number of genes increases in response to some signal the effect is called…..

(a) gene dosage (b)Gene pool

(c) gene amplification (d) gene freaquency

27. Which one of the following pairs is correctly matched ?

(a) RNA polymerase – RNA primer

(b) Restrication enzymes – Genetic engineering

(c) Centeral dogma – codon

(d) okazaki fragments – splicing

28.  Plasmids are autonomously replicating mini chromosomes found in……

(a) Bachterio phage lambda (b) Leishmania donovani

(c) Escherichia coli (d) para moecium caudatum

29. Improvement of genotype of an organism by addition of some foreigm gene is……

(a) genetic diversity (b) gene handing

(c) tissue culture (d) genetic engineering

30. Two bacteria found to be very useful in genetic engineering experiments are……

(a) Nitrosomonas and Klebsiella (b) Escherichia and Agrobacterium

(c) Nitrobacter and Azotobacter (d) Rhizobium and Diplococcus

31.  Restriction enzymes are isolated chielfy from…….

(a) Algae (b) Fungi

(c) Protozoans (d) Prokaryotes

32.  There are special proteins that help to open up DNA double helix in front of the reaplication work . these proteins are……..

(a) DNA gyrase (b) DNA polymerase I

(b) DNA ligase (d) DNA topoisomerase

33. Technology which uses living components for the welfare of human being is…..

(a) Biology (b) Botany

 (c) Bioinformatics (d) Biotechnology

34. Which prosess is involved in making bread cheese, beer and wine?

(a) Respiration / hydrolysis (b) Degradation

(c) Fermentation (d) Decomposition

35.  EFB stands for ……..

(a) European Foudation of Biotechnology (b) European Foundation of Biology

(c) European Foundation of Biotechnology (d) European Foundation of Biology

36. The organism whoes gene have been artificially altered for desired efect is called as…….

(a) genetically mutant organism (b) gene transfer

(c) genetically modified organism (d) Genetically transferred organism

37.  The sequence of DNA that reads the same backward and forward across the double strand is……..

(a) Recipient sequence (b) palindromic sequence

(c) Replicate sequence (d) origin sequence

38. How many restriction enzymes are known to be isolated?

(a) More than 800 (b) More than 700

(c) More than 600 (d) More than 900

39. Which of the following step is necessary part of DNA recombination technology?

(a) Insertion of DNA fragment into vector

(b) Insertion of vector into Bacteria

(c) Multiplication of the clones containing the recombination molecule

(d) All the above

40. Restriction enzymes belong to which class of enzymes?

(a) Nucleolase (b) Exo nucleases

(c) Nucleases (d) Endonucleases

41. A sequence of in a genome at which replication is intiated in ………

(a) Origin of replication (b) selectable marker

(c) Cloning site (d) origin of restriction

42. Genes who helps in the growth of transformants are …..

(a) Origin of replication (b) cloning site

(c) Origin of restriction (d) selectable marker

43. Ti Plasmid is a cloning vector which works with

(a) All the plants (b) Dicots only

(c) Monocots only (d) Thallophytes only

44. During which of the following techniques host cells are exposed to pulse of high voltage current?

(a) Electroporation (b) Particle Bombard ments

(c) Micro injection (d) lipofection

45. Particle bombardment technique is also known as …..

(a) Lipofection (b) Electroporation

(c) Biolistic (d) Micro injection

46. Which enzyme is used to break the membrane to release plant DNA?

(a) Lysozyme (b) Chitinase

 (c) Cellulose (d) All the above

47. Which is the first step in the process recombinant DNA technology?

(a) Denaturing of DNA (b) Annealing of DNA

(c) Isolation of Donor DNA (d) down streaming

48. Which primers are used in annealing during amplification of gene?

(a) Reverse primers (b) Forward primers

(c) Oligo nucleotide primer (d) Internal primers

49. (50) What is temperature required for annealing of DNA molecule?


50. Which of the following is related with genetic engineering?

(a) Breeding (b) somatic hybridization

(c) mutation (d) Transgenic

51. What is C – DNA?

(a) Circular DNA (b) Cloned DNA

(d) Cytoplasmic DNA (c) DNA produced from reverse transcription of RNA

52.  Which of the bollowing statement is incorrect?

(a) cosmid contains gene coding for viral protein

(b) cosmid relpicates like plasmids

(c) cosmid has antibioticresistant marker gene

(d) cos sit has 12 bases helping to join complete genome to make it circular

53. The genetic recombinants obtained by insertion of plasmid into 1 phage genome is called

(a) cosmid (b) plasmid

(c) phagmid (d) foreign DNA

54. TATAATG sequence near the RNA start point of prokaryotic promoter is……

(a) NICKS (b) DNA marker

(c) palindrome (d) rainbow box

55. Exonucleases cleaving nucleotides one at a time from the end of polynucleotide chain are.

(a) Specific for 5’ end of RNA strand (b) specific for 3’ end of RNA strand

(c) Specific for both 5’ and 3’ ends of nucleotide strand

(d) Non- specific for 5’ and 3’ ends of nucleotide

56. Genes that are involved in turning on or off the transcription of a set of structural genes are called

(a) Polymorphic genes (b) operator gene

(c) Redundant gene (d) Regulatory gene

57. This segment of DNA restriction sites I and II which create restriction fragments a, b and c which of the following gel (s) Produces by electrophoresis would represent the separation and identity of these fragments?



58. Enzymes used in PCR are ….

(a) taq polymerase (b) gyrase

(c) transcriptase (d) hexokinase

59. What are structure labelled A & B respectively

(a) EcoRv restriction endonuclease and E coRv ligase

(b) EcoRv ligase and EcoRv nuclease and EcoRvmethlase

(c) Eco–– Rv restriction endo EcoRv methylase

(d) EcoRv Polymerase and EcoRv methylase

60. Can you pick up from the figure how bacteria protects its own genone from degradation by restreiction endonuclease ?

(a) Site specific coupling

(b) Site specific oxidizing

(c) Site specific oxidizing

(d) Site specific methylases

61. This is figure of plasmid PBR322 Identiby what represented by A, B, and C

(a) A TcR, B ApR and C EcorI

(b) A TcR, B EcoRI and C ApR

(c) A – EcorI, B ApR and C TcR

(d) A ApR, B TcR and C EcoRz

62. Match the column I and column II

|  |  |  |  |
| --- | --- | --- | --- |
| P | Radio active antibody | (a) | substance that can be constructed in the laboratory |
| Q | Artificial gene | (b) | substance that can be used to identify colonies of genetically engineered bacteria that makes particular gene product |
| R | Amplification | (c) | Abnormal enhanced replication of a plasmid many copies of plasmid in each cell |
| S | To produce clones | (d) | A large population of identical cells |
| T | short gun cloning | (e) | The use of entire array of genes of an organism in order to obtain particular gene product |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | P | Q | R | S | T |
| (a) | b | a | c | d | e |
| (b) | a | c | b | d | e |
| (c) | a | c | d | b | e |
| (d) | b | c | e | d | a |

 Assertoin- Reason type Questions

A is assertion R is reasoning

(a) A is correct, R is explanation of A

(b) A is correct, R is correct but it is not exlpanation of A

(c) A is correct , R is false.

(d) A is wrong , R is wrong

(e) A is wrong, R correct

63. A – Hybridoma cells are shifted to a medium deficient in nutrient which can not be syntth sized by myeloma cells

R – This medium allows selection of hybridoma cells

(a) (b) (c) (d) (e)

64.A – The term hybridoma is applied to fused cells

R – They are formed by the fusion of lymphocyte cell and myeloma cell

(a) (b) (c) (d) (e)

64. A – Extraction and purficiation of enzymes is laborious and expensive

R – protein engineering can be used to produce enzymes at large scale

(a) (b) (c) (d) (e)

65. A – Restriction enzymes of different organisms that recognize the identical sequences a the called isoschizomers

R – They are present only in eukarytoes

(a) (b) (c) (d) (e)

66. A- Plasmids are tools of genetic engineering

R- Virulence plasmids provide pathogenecity to bacteria

(a) (b) (c) (d) (e)

67. Find the incorrect statement

(a) Gene therapy is a genetic engineering technique used to treat disease at molecular level by replacing defective genes with normal genes.

(b) Calcitonin is a medically useful recombinant product in the treatment of intetility

(c) Bt toxin is a Biodegradable insecticide obtained from *Bacillis thuringiensis*

(d) Trichoderma sp. is a biocontrol agent for fungal diseases of plants

(e) Totipotency is the potential ability of a cell to develop into a complete plant

68. Production of a human protein in bacteria genetic engineering is possible because

(a) bacterial cell can carry out the RNA splicing reactions

(b) the human chromosome can replicate in bacterial cell

(c) the mechanism of gene regulation is identical in human and bacteria

(d) The genetic code is universal

69. The basis of DNA finger printing is

(a) The double helix (b) Errors in base sequence

(c) Poly morphism in sequence (d) DNA replication

(e) DNA Coiling

70. A genetically engineered microorganism used successfully in biomediation of oil spillg is species of (CBSE-2007)

(a) Trichoderma (b) Xamthomonas

(c) Bacillus (d) Pseudomonas