

MB-301 Genetic Engineering and Protein Engineering

કુલ સમય :- : ૩૦ મીનીટ

કુલ પ્રશ્નો : ૩૫

વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૧૮

નોંધ : વિદ્યાર્થીએ માત્ર ૧૮ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૧૮ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

1. The nature of an enzyme is
a) Lipid b) Vitamin c) Carbohydrate d) Protein
2. This statement about enzymes is true
a) Enzymes accelerate reactions by lowering the activation energy
b) Enzymes are proteins whose three-dimensional form is key to their function
c) Enzymes do not alter the overall change in free energy for a reaction
d) All of these
3. The RNA strand in the RNA-DNA hybrid is removed by
a) RNase b) RNase-H c) Nuclease d) None of these
4. Enzymes are
a) Organic compounds produced by living organism b) Inorganic compounds
c) Organic as well as inorganic compounds d) All of these
5. Intracellular enzymes
a) Synthesize cellular material only b) Synthesize cellular material and perform catabolic reaction
c) Synthesize cellular material and perform anabolic reaction d) Only provide energy to the cell
6. Introduction of DNA molecules into the recipient organism is termed as _____
a) Transformation b) Translation c) Transduction d) Transcription
7. The bacterium used for gene transfer in plants is
a) E.coli b) Rhizobium c) Azotobacter d) Agrobacterium
8. The polymerase chain reaction is _____.
(a) It is a DNA sequencing technique. (b) It is a DNA degradation technique
(c) It is a DNA amplification technique (d) All of the above
9. The PCR technique was developed by _____.
a) Kohler b) Altman c) Milstein d) Kary Mullis
10. What is the process of binding of primer to the denatured strand called?
a) Annealing b) Renaturation c) Denaturation d) None of the above
11. The first genomic libraries were cloned in _____
a) Plasmid b) Bacteria c) Human d) Plants
12. A genomic library is a collection of _____
a) Genes b) Proteins c) Vectors d) Recombinants
13. The DNA molecule used for integrating foreign gene for cloning is called
a) Vector b) Carrier c) Template d) Transformer
14. The Ti plasmid is found in
a) Agrobacterium b) Yeast as a 2mm plasmid
c) Rhizobium of the roots of leguminous plants d) Azotobacter
15. Transfer of genetic material from one bacterium to another in the process of transduction is by
a) Conjugation between bacteria of opposite strains b) Physical contact between donor and recipient
c) Special organ for conjugation d) Bacteriophages
16. Site-directed mutagenesis is changing a given base in the cloned DNA.
a) True b) False
17. Creation of mutant proteins with novel properties is called _____.
a) Cloning b) Protein engineering c) Mutagenesis d) Sequencing
18. The synthetic oligonucleotide _____ the DNA synthesis.
a) Primes b) Shortens c) Lengthens d) Degrades
19. Which of the following molecules can be analyzed using a northern blot?
a) RNA b) Carbohydrates c) Proteins d) DNA
20. Which of the following is a commonly used label in blotting techniques?
a) vimentin b) biotin c) avidin d) streptomycin
21. Western blotting is the technique for the detection of
a) Specific DNA in a sample b) Specific RNA in a sample
c) Specific protein in a sample d) Specific glycolipid in a sample
22. β -pleated sheets are the examples of _____.
a) Primary structure b) Secondary structure c) Tertiary structure d) Quaternary structure
23. A coiled peptide chain held in place by hydrogen bonding between peptide bonds in the same chain is?
a) Primary structure b) α -helix c) β -pleated sheets d) Tertiary structure
24. Secondary structure of protein is defined by _____.
a) Hydrogen bonding b) Vander Waals forces c) Covalent bonding d) Ionic bonding
25. A structure that has hydrogen bonds between polypeptide chains arranged side by side is?
a) Primary structure b) α -helix c) β -pleated sheets d) Tertiary structure

26. What is a DNA library?
 - a) A DNA fragment inserted into a vector
 - b) A general collection of all genes sequenced thus far
 - c) All DNA fragments identified with a probe
 - d) A collection of DNA fragments that make up the entire genome of a particular organism
27. Which of the following enzyme is required for end to end joining of DNA?
 - a) DNA ligase
 - b) Restriction endonuclease
 - c) RNA polymerase
 - d) DNA polymerase
28. Gene mutation occurs at the time of
 - a) DNA replication
 - b) DNA repair
 - c) cell division
 - d) RNA transcription
29. How many DNA duplexes are obtained from one DNA duplex after 4 cycles of PCR?
 - a) 8
 - b) 4
 - c) 32
 - d) 16
30. Damage and errors in DNA cause
 - a) Translation
 - b) DNA repair
 - c) Mutation
 - d) Transcription
31. An allele is
 - a) Another word of a gene
 - b) A homozygous genotype
 - c) A heterozygous genotype
 - d) One of several possible form of a gene
32. Restriction endonuclease are also called as
 - a) Biological scissors
 - b) Molecular scalpels
 - c) Molecular knives
 - d) All of these
33. The gene formed by the joining of DNA segments from two different sources are called as
 - a) Recombinant gene
 - b) Joint gene
 - c) Both a and b
 - d) Chimeric gene
34. Excision and insertion of a gene is called
 - a) Biotechnology
 - b) Genetic engineering
 - c) Cytogenetics
 - d) Gene therapy
35. Which is a genetically modified crop?
 - a) Bt-cotton
 - b) Bt-brinjal
 - c) Golden rice
 - d) All
36. Klenow fragment is derived from
 - a) DNA Ligase
 - b) DNA Pol-I
 - c) DNA Pol-II
 - d) Reverse Transcriptase
37. Ti plasmids are ____ plasmids.
 - a) Tumor inducing
 - b) Degradation
 - c) High copy number
 - d) Mammalian
38. The most common use of Retroviruses is _____.
 - a) Pharming
 - b) Gene therapy
 - c) Recombinant protein production
 - d) Molecular cloning
39. Gene therapy is a technique only associated with plants.
 - a) True
 - b) False
40. The repeating units of proteins are
 - a) glucose units
 - b) amino acids
 - c) fatty acids
 - d) peptides
41. The primary structure of protein represents
 - a) Linear sequence of amino acids joined by peptide bond
 - b) 3-dimensional structure of protein
 - c) helical structure of protein
 - d) sub unit structure of protein
42. The study of the full complement of proteins expressed by a genome is called ____
 - a) Proteome
 - b) Proteomics
 - c) Genomics
 - d) Protein formation
43. Functions and structure of genome is _____.
 - a) species
 - b) Genomics
 - c) inheritance
 - d) None of these
44. A cDNA library:
 - a) Can also be called an expressed sequence tag (EST) library.
 - b) Consists of coding sequences from genes that are expressed.
 - c) Is specific to the set of conditions under which the original mRNA was generated.
 - d) All of these.
45. Which of the following is a mismatch?
 - a) Polymerase – Taq polymerase
 - b) Template – double stranded DNA
 - c) Primer – oligonucleotide
 - d) Synthesis – 5' to 3' direction
46. Who is known as the "Father of Genetics"?
 - a) Morgan
 - b) Mendel
 - c) Watson
 - d) Bateson
47. Which of the following enzyme is used in PCR?
 - a) Taq DNA polymerase
 - b) HRP
 - c) EcoRI
 - d) EcoRII
48. cDNA, a term used in recombinant DNA technology means _____.
 - a) Competitive DNA
 - b) Chemical DNA
 - c) Complex DNA
 - d) Complementary DNA
49. Which of the following types of DNA polymerase has 3'→5' exonuclease activity?
 - a) DNA polymerase I
 - b) DNA polymerase II
 - c) DNA polymerase III
 - d) DNA polymerase IV
50. The sugar molecule in a nucleotide is _____.
 - a) Pentose
 - b) Hexose
 - c) Tetrose
 - d) Triose