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M. Sc. SEM – III
JULY-SEP-2021
BIO-TECHNOLOGY
BT-301- r-DNA technology

કુલ સમય :– ૬૦ મીનીટ કુલ પ્રશ્નો : ૫૦ વિદ્યાર્થીએ ટીક કરવાના પ્રશ્નો : ૩૫

નોંધ : વિદ્યાર્થીએ માત્ર ૩૫ પ્રશ્નો જ ટીક કરવાના રહેશે. જો વધારે ટીક કરેલ હશે તો પ્રથમ ૩૫ પ્રશ્નો જ ગણતરીમાં લેવામાં આવશે.

1. Who developed the chemical techniques to synthesize polynucleotides?
a) Barbara McClintock b) James Watson c) Fredrick Sanger d) H. Gobind Khorana
2. Which of the following enzymes in bacteria are responsible for restricting the growth of viruses?
a) Restriction endonuclease b) Topoisomerase c) Gyrase d) Protease
3. Which enzyme is used to join together two different types of DNA molecules?
a) Ligase b) Endonuclease c) Exonuclease d) Protease
4. The first recombinant DNA molecule was synthesized in the year _____
a) 1962 b) 1972 c) 1982 d) 1992
5. Which observation was made by Avery, Macleod, and McCarty?
a) DNA is a duplex molecule b) DNA can be taken up from medium
c) DNA can denature at high temperatures d) DNA is more stable than RNA
6. Recombinant plasmids are added to a bacterial culture that has been pretreated with _____ ions.
a) Iodine b) Magnesium c) Calcium d) Ferric
7. Which of these restriction enzymes produce blunt ends?
A. SaII B. EcoRV C. XhoI D. HindIII
8. Restriction enzymes are named for
A. the person who discovered B. the bacterium they are derived from
C. the viral DNA that they attack D. none of the above
9. In gel electrophoresis, DNA molecules migrate froM_____ to _____ ends of the gel.
A. negative … positive B. basic … acidic C. long … short D. positive to negative
10. Restriction enzymes
A. protect bacteria from viral infection B. cut DNA in a staggered fashion
C. cut DNAs producing a blunt end D. all of the above
11. Which of the following techniques can be used to determine the defective gene and for developing cancer?
A. Western blot B. Southern blot C. Northern blot D. Eastern blot
12. In order to insert a foreign gene into a plasmid, both must _____
A. have identical DNA sequences B. originate from the same type of cell
C. be cut by the same restriction enzyme D. be of the same length
13. Why is golden rice pale yellow in color?
A. It is rich in chlorophyll a. B. It is rich in beta-carotene.
C. It is rich in chlorophyll b. D. It is rich in phycobilins.
14 A plasmid
A. is a circular DNA molecule B. always contains an origin of replication
C. usually contains one or more restriction sites D. all of the above
15. The gene formed by the joining of DNA segments from two different sources are called as
a) Recombinant gene b) Joined gene c) Both a and b d) Chimaeric gene
16. Which of the following enzyme is used to cut DNA molecule in r DNA technology
a) Ligase b) Phosphatase c) Ribonuclease d) Restriction enzymes
17. Restriction enzymes are also called as
a) Biological scissors b) Molecular scalpels c) Molecular knives d) all of these
18. The most important discovery that lead
a) Double helix model of Watson and Crick b) Discovery of restriction enzymes
c) Discovery of ligase enzyme d) Discovery of plasmids
19. Who discovered restriction enzymes
a) Nathan, Arber and Smith in 1970 b) Watson, Crick and Wilkins in1970
c) Boyer and Cohen in1975 d) Paul Berg in 1975
20. Who created the first r DNA molecule
a) Nathan, Arber and Smith b) Watson, Crick and Wilkins c) Boyer and Cohen d) Paul Berg
21. The DNA molecule to which the gene of insert is integrated for cloning is called
a) carrier b) Transformer c) Vector d) None of these
22. The DNA segment to be cloned is called
a) Gene segment b) DNA fragment c) DNA inserts d) all of these
23. Which of the following statements are true regarding r DNA technology
a) rDNA technology is used to obtain large number of copies of specific DNA fragments
b) rDNA technology is used to obtain large quantities of the protein produced by the concerned gene
c) rDNA technology is used to integrate gene of interest into chromosomes where it expresses itself
d) all of these

24. The first successful transformation of rDNA molecule into a bacterium was carried out by
a) Nathan, Arber and Smith b) Watson, Crick and Wilkins
c) Boyer and Cohen d) Paul Berg
25. The plasmid used by Cohen and Boyer for their transformation experiment was
a) pSC 101 b) PUC 17 c) pBR 322 d) E.coli plasmids
26. The mechanism of intake of DNA fragments from the surrounding medium by a cell is called
a) Transformation b) Transduction c) Both a and b d) Conjugation
27. Gene cloning refers to the
a) Production of large number of copies of the gene being cloned
b) Production of asexual progeny from a single individual or a cell
c) Both a and b d) None of these
28. Which of the following is a commonly used bacterium in plant genetic engineering
(a) *Salmonella typhii* (b) *Bacillus subtilis* (c) *Corynebacterium* (d) *Agrobacterium*
29. Monoclonal antibodies are produced by
(a) Pure culture of cells producing antibodies (b) Recombinant DNA technology
(c) Somatic hybridization technology (d) DNA-RNA hybridization
30. Genetically engineered bacteria is used for the production of
(a) thyroxin (b) human insulin (c) ephedrine (d) cortisoles
31. The sites of DNA where restriction enzyme act are generally
(a) Palindromic (b) Tandem repeats (c) CG rich regions (d) TATA boxes
32. Which of the following enzyme is a necessary to make accurate copy of vector DNA
(a) RNA polymerase (b) DNA polymerase (c) DNA ligase (d) Endonuclease
33. What is the name of the site where foreign DNA can be inserted into in the plasmid of *Agrobacterium*?
(a) t-RNA (b) c-DNA (c) T-DNA (d) B-DNA
34. A method used to insert DNA molecules into the cells by using short electrical impulses is known as
(a) Biolistics (b) Microinjection (c) Liposomes d) Electroporation
35. The most effective treatment for genetic disorder in the present times is
(a) Gene mapping (b) Genetic counseling (c) Gene therapy (d) Cloning
36. Technique of DNA fingerprinting involves
(a) ELISA (b) Northern blotting (c) Southern blotting (d) PAGE
37. Gene library is
(a) Set of books on genes (b) Variety of genetic characters of an organism
(c) Total genomic DNA (d) Collection of independently isolated DNA of an organism
38. Which of the following is used for the production of cDNA?
(a) DNA polymerase b) Reverse transcriptase (c) Endonuclease (d) Ligase
39. Gene bank store
(a) genes only (b) seeds only (c) gene maps only (d) germplasm
40. Cells obtained from cancerous tumors are called
(a) galls (b) myelomas (c) antibodies (d) hybridomas
41. The enzymes commonly used in genetic engineering are
(a) restriction endonuclease and ligase (b) ligase and polymerase
(c) restriction endonuclease and polymerases (d) endonuclease and ligase
42. The first hormone produced artificially by culturing bacteria is
(a) insulin (b) adrenaline (c) thyroxine (d) testosterone
43. Antiviral substance produced by man, vertebrates response to viral infection for resisting multiplication of virus is known as
(a) virion (b) interferon (c) antigen (d) antivirin
44. Ti plasmid in transforms cells of
(a) animals (b) plants (c) bacteria (d) fungi
45. DNA is genetically methylated at
(a) A-base (b) G-base (c) T-base (d) C- base
46. Bacteria protect themselves from viruses by fragmenting viral DNA with
(a) endonuclease (b) exonuclease (c) gyrase (d) ligase
47. The enzyme used in PCR is
(a) RNA polymerase (b) Taq polymerase (c) reverse transcriptase (d) both b and c
48 What is true for plasmids?
(a) found in viruses (b) contain genes for vital activities
(c) part of nuclear chromosomes (d) widely used in gene transfer
49. Genomic library can be prepared by
(a) PCR technique (b) shotgun experiment (c) colony hybridization (d) all of these
50. Which enzymes are used to convert lycopene into Vitamin A precursors?
(a) Phytoene synthase (b) Phytoene desaturase
(c) Carotene desatuarase (d) Lycopene Beta-cyclase