CBSE

BIOTECHNOLOGY AND ITS APPLICATIONS WS 1

Class 12 - Biology

1. Polymerase chain reaction technology (PCR) is used for: **[1]**

   a) DNA identification
   b) DNA amplification
   c) Cleave DNA
   d) DNA repair

2. Two microbes found to be very useful in genetic engineering are: **[1]**

   a) Diplococcus sp. and Pseudomonas sp.
   b) Escherichia coli and Agrobacterium tumefaciens
   c) Vibrio choterae and tailed bacteriophage
   d) Crown gall bacterium and Caenorhabditis elegans

3. The DNA molecule to which gene of interest is integrated for cloning is called: **[1]**

   a) Carrier
   b) Template
   c) Vector
   d) Transformer

4. DNA is denatured to produce single strand by: **[1]**

   a) Alkaline solution
   b) Chelators
   c) Oxidising agents
   d) Acidic solution

5. A probe is: **[1]**

   a) Antibiotic resistant gene
   b) Promoter
   c) Complementary sequence of DNA
   d) Radioactive substance

6. Industrial production of ethanol from starch is brought about by a certain species of: **[1]**

   a) Azotobacter
   b) Penicillium
   c) Lactobacillus
   d) Saccharomyces

7. A protoxin is: **[1]**

   a) Toxin produced by protozoa
   b) A denatured toxin
   c) A primitive toxin
   d) Inactive toxin

8. Cultivation of Bt cotton has been much in the news. The prefix Bt means: **[1]**

   a) Barium-treated cotton seeds.
   b) Bigger thread variety of cotton with better tensile strength.
   c) Produced by biotechnology using restriction enzymes and ligases.
   d) Carrying an endotoxin gene from Bacillus thuringiensis.

9. Mobile genetic elements that replicate an RNA intermediate are called as: **[1]**

   a) Transposons
   b) Exons

c) Recons
d) Introns

10. The **genetic defect-Adenosine Deaminase** (ADA) deficiency may be cured permanently by: **[1]**

a) Introducing bone marrow cells producing ADA into cells at early embryonic stages.
b) Enzyme replacement therapy.
c) Administering adenosine deaminase activators.
d) Periodic infusion of genetically engineered lymphocytes having functional ADA cDNA.

11. A probe which is a molecule used to locate homologous sequences in a mixture of DNA or RNA molecules could be: **[1]**

a) A ssDNA
b) Either RNA or DNA
c) Can be ssDNA but not ssRNA
d) A ssRNA

12. The tests that are used in diagnosis of AIDS are: **[1]**

a) Western blot and ELISA
b) ELISA and Southern blot
c) ELISA and immunoblot
d) Northern blot and ELISA

13. To confirm ELISA for AIDS we used: **[1]**

a) Southern blotting
b) Northern blotting
c) Eastern blotting
d) Western blotting

14. $\alpha - 1$ antitrypsin is: **[1]**

a) Bronchitis
b) Lung cancer
c) Emphysema
d) Cancer

15. Which one of the following is related with genetic engineering? **[1]**

a) Lysosomes
b) Mitochondria
c) Plastids
d) Plasmids

16. Which of the following is not a use of transgenic animals? **[1]**

a) Obtaining biological product.
b) Chemical safety testing.
c) Study of viral disease.
d) Study of normal physiology and development.

17. Enzymes used in detergent are: **[1]**

a) Lipases
b) Amylases
c) Proteases
d) Glucoisomerases

18. What is commonly called mobile genetic elements? **[1]**

a) Plasmids
b) Transposes
c) RNA
d) VNTRs

19. In the nomenclature of enzyme restriction endonuclease, the Roman numerals indicates: **[1]**

a) Number of cuts on DNA.
b) Number of recombinants formed.

c) Number of times it is used.
d) The order of discovery from source.

20. One of the methods by which DNA cannot be transferred to host cell by: **[1]**

a) Gene gun
b) Microinjection
c) Polymerase chain reaction
d) Disarmed pathogen vectors

21. In vitro clonal propagation in plants is characterized by: **[1]**

a) Electrophoresis and HPLC
b) PCR and RAPD
c) Microscopy
d) Northern blotting

22. Gene transfer in biotechnology can be done by: **[1]**

a) Breeding
b) Microinjection
c) Somatic hybridization
d) Cloning

23. Pathophysiology is the: **[1]**

a) Study of physiology of pathogen
b) Study of Abnormal physiology of host
c) Study of normal physiology of host
d) Study of altered physiology of host

24. B_2 is got from: **[1]**

a) Pseudomonas
b) Acetobacter
c) Ashbya gossypii
d) Bacillus megatherium

25. **Bt** cotton is resistant to: **[1]**

a) Draught
b) Salt
c) Insects
d) Herbicides

26. **Cry' protein** coded by gene Cry IAb controls **[1]**

a) Tobacco budworm
b) Corn borer
c) Mosquito
d) Cotton bollworm

27. Which of the following is not used as bioweapon? **[1]**

a) Smallpox
b) Botulinum toxin
c) Bacillus thuringiensis toxin
d) Bacillus anthracis

28. Insulin has 51 amino acids arranged in: **[1]**

a) Two polypeptides of 21 and 30 amino acids.
b) Single polypeptide
c) Three polypeptides having 15, 16 and 20 amino acids.
d) Two polypeptides of 25 and 26 amino acid.

29. Purified antibiotic penicillin of Penicillium notatum was discovered by: **[1]**

a) Alexandar Fleming
b) Robert Hooke
c) Howard Florey
d) Carolus Linnaeus

30. In RNAi, genes are silenced using: **[1]**

a) ss DNA
b) ss RNA
c) ds DNA
d) ds RNA

31. Which one of the following is correctly matched? **[1]**

- Agrobacterium tumifaciens - tumour
- Thermus aquaticus - Bt-gene
- pBR322 - enzymes
- Ligase - Molecule scissors

a) Ligase - Molecule scissors
b) Agrobacterium tumifaciens - tumour
c) pBR322 - enzymes
d) Thermus aquaticus - Bt-gene

32. The PCR technique was invented by: **[1]**

a) Karry Mullis
b) Kohen
c) Sanger
d) Boyer

33. The cutting out of separated bands of DNA from the agars gel is called: **[1]**

a) Elution
b) Polymerisation
c) Electrophoresis
d) Annealing

34. In rDNA technology, the Hepatitis B vaccine is produced from: **[1]**

a) Bacillus
b) Streptaescores
c) E.coli
d) Yeast

35. The trigger for activation of toxin of *Bacillus thuringiensis* is: **[1]**

a) Mechanical action in the insect gut
b) Acidic pH of stomach
c) High temperature
d) Alkaline pH of gut

36. Streptomycin is obtained from: **[1]**

a) S. venezualae
b) Streptomyces griseus
c) S. ramosus
d) S. aureofaciens

37. Plasmid used to produce humulin is: **[1]**

a) BAC
b) YAC
c) Pbr322
d) Phage

38. The abbreviation **Bt** in **Bt** toxin stands for: **[1]**

a) Toxin released by Bacillus thuringiensis
b) Biotoxin
c) Biotechnology
d) Toxins released by Bacteria

39. Gene therapy for the first time was clinically done for: **[1]**

a) Diabetes
b) Rheumatoid fever
c) ADA deficiency
d) Alzheimer's disease

40. Single cell protein refers to: **[1]**

a) A specific protein extracted from pure culture of single type of cells.
b) Proteins extracted from a single cell.
c) Sources of mixed proteins extracted from
d) A specific protein extracted from a single

pure or mixed culture of organisms or cells. cell.

41. Which technique is routinely used in HIV detection? **[1]**

a) DNA sequencing b) PCR

c) GEAC d) Gel electrophoresis

42. The site of production of ADA in the body is: **[1]**

a) Erythrocytes b) Blood plasma

c) Osteocytes d) Lymphocytes

43. Full form of GMO is: **[1]**

a) Genetically mutant organism b) Genetically modern organism

c) Genetically transferred organism d) Genetically modified organism

44. An analysis of chromosomal DNA using the southern hybridisation technique does not use: **[1]**

a) Autoradiography b) Blotting

c) PCR d) Electrophoresis

45. A technology which has found immense use in solving cases of disputed parentage is: **[1]**

a) Polymerase chain reaction b) Monoclonal antibody production

c) DNA fingerprinting d) Recombinant DNA technology

46. C-peptide of human insulin is: **[1]**

a) Removed during maturation of pro-insulin to insulin. b) Responsible for its biological activity.

c) Responsible for formation of disulphide bridges. d) A part of the mature insulin molecule.

47. Radioactive probe can be detected by: **[1]**

a) Autoradiography b) Centrifugation

c) Sequencing d) PCR

48. Bt cotton is not: **[1]**

a) A GM plant b) A bacterial gene expressing system

c) Insect resistant d) Resistant to all pesticides

49. Bacillus thuringiensis (Bt) strains have been used for designing novel: **[1]**

a) Bio-mineralization processes b) Bio-fertilizers

c) Bio-insecticidal plants d) Bio-metallurgical technique

50. Leech secretes which of the following anticoagulants? **[1]**

a) Serotonin b) Histamine

c) Heparin d) Hirudin

51. The Bt gene is isolated from the organism called: **[1]**

a) Azolla b) Brassica napus

c) Bacillus thuringiensis
d) Rhizobium

52. Which of the following enzyme is used in making detergent? **[1]**

a) Amylase
b) Peptidase
c) Cellulase
d) Protease

53. Steroids are used in: **[1]**

a) All of these
b) Birth control
c) Treatment of hormonal imbalance.
d) Treatment of autoimmune diseases.

54. How does pro insulin become mature? **[1]**

a) By changing its 3D shape
b) By adding a short peptide
c) By removal of C-peptide
d) By cutting into 2 halves

55. Alpha lactalbumin present in milk is: **[1]**

a) Sugar
b) Protein
c) Nucleotide
d) Lipid

56. Penicillin was used in: **[1]**

a) Both World War I and World War II
b) World War II
c) World War I
d) World War III

57. First hormone produced artificially by culturing bacteria is: **[1]**

a) Testosterone
b) Insulin
c) Adrenaline
d) Thyroxine

58. Third generation vaccines are: **[1]**

a) Attenuated pathogen
b) Monoclonal antigen
c) Pathogen relative
d) Synthetic antigen

59. Crystals of Bt toxin produced by some bacteria do not kill the bacteria themselves because - **[1]**

a) toxin is immature
b) bacteria are resistant to the toxin
c) bacteria encloses toxin in a special sac.
d) toxin is inactive

60. Rate of fluorescence in a titer plate in ELISA is: **[1]**

a) directly proportional to the antigen.
b) inversely proportional to antigen.
c) does not gives any idea.
d) the indication of the false test.

61. Among the following stem cells, which are found in umbilical cord: **[1]**

a) Adult stem cells
b) Cord blood stem cells
c) Embryonic stem cells
d) All of these

62. An enzyme produced commercially from Saccharomyces cerevisiae is: **[1]**

a) Amylase
b) Maltase
c) Invertase
d) Lactase

63. The first clinical gene therapy was done for the treatment of: **[1]**

a) Cystic fibrosis
b) AIDS
c) SCID (Severe Combined Immuno Deficiency resulting from deficiency of ADA)
d) Cancer

64. Which of the following is useful in solving cases of parental disputes? **[1]**

a) Western blotting
b) DNA fingerprinting
c) Hybridoma technology
d) ELISA

65. ELISA technique is based on the principle of **[1]**

a) DNA replication
b) Antigen and Protein interaction
c) Pathogen and Antigen interaction
d) Antigen and Antibody interaction

66. Fermentation ability of Yeast is due to: **[1]**

a) Amylase
b) Zymase
c) Invertase
d) Galactase

67. Anticoagulant hirudin is found in: **[1]**

a) Snake
b) Lizard
c) Leech
d) Scorpion

68. Transgenic mice are developed use in testing the safety of: **[1]**

a) Antiseptics
b) Antibiotics
c) Antipyretics
d) Vaccine

69. Magic bullets are: **[1]**

a) Anabolic steroids
b) Recombinant vaccines
c) Monoclonal antibodies
d) Chemotherapy drugs for cancer

70. The source of DNA polymerase used in PCR: **[1]**

a) Bacteriophage
b) Bacteria
c) Yeast
d) Fungus

71. Using a single template molecule, how many DNA molecules are generated after 10 cycles of amplification in PCR? **[1]**

a) 1128 molecules
b) 927 molecules
c) 1024 molecules
d) 1224 molecules

72. Bacillus thuringiensis is used to control: **[1]**

a) Nematodes
b) Fungal pathogens
c) Bacterial pathogens
d) Insect pests

73. Genetically engineered bovine (bST), sometimes called rbST (recombinant bovine somatotropin) or rbGH (recombinant bovine growth hormone) are used in the: **[1]**

a) Agriculture
b) DNA fingerprinting

c) Dairy industry

d) Therapeutic drugs

74. Enzymes, vitamins and hormones can be classified into single category of biological chemicals, because all of these: **[1]**

a) Are extensively synthesised in the body of living organism.

b) Enhance oxidative metabolism.

c) Are conjugate proteins.

d) Help in regulating metabolism.

75. Which one of these is not a tool of recombinant DNA technology? **[1]**

a) Restriction enzyme

b) Vector

c) Introns

d) Polymerase enzyme