ABHINAV ACADEMY

UDUPI

CET25B10 BIOTECHNOLOGY AND ITS APPLICATIONS

Class 12 - Biology

Time Allowed: 1 hour and 30 minutes **Maximum Marks: 75**

1. 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

2. The abbreviation **Bt** in Bt Cotton stands for: **[1]**

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

3. 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.

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

   a) Genetically mutant organism
   b) Genetically modern organism
   c) Genetically transferred organism
   d) Genetically modified organism

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

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

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

   a) Transposons
   b) Exons
   c) Recons
   d) Introns

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

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

8. 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

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

   a) Lipases
   b) Amylases

c) Proteases
d) Glucoisomerases

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

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

11. Commonly used reporter gene that utilises histochemical assay in plant expression vector is: **[1]**

a) TAC
b) TAG
c) GAT
d) CAT

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

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

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

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

14. Role of GEAC is to: **[1]**

a) Study the positive effects of GMO's
b) Commercialize the new technology
c) Bring new technology
d) Take decisions regarding GM research and safety of introducing GM genes.

15. Biopiracy is the use of bio-resources by multinational companies and other organizations: **[1]**

a) After paying compensation.
b) After proper authorization from concerned country.
c) Allowing GM products.
d) Without proper authorization from concerned country.

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

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

17. Who among the following challenged the patent right granted to the University of Mississippi Medical Centre for **use of turmeric in wound healing**? **[1]**

a) Dr. R.A. Mashelkar
b) Ms. Vandana Shiva
c) Mr. Ajay Phadke
d) Dr. Venugopalan

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

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

19. **Bt** toxin is: **[1]**

a) Lipid
b) Intracellular crystalline protein
c) Extracellular crystalline protein
d) Intracellular lipid

20. Which one of the following is **not** the product of transgenic experiments? **[1]**

a) Pest-resistant crop variety
b) High nutritional value in grains
c) Production of insulin by rDNA technique
d) Drought-resistant crops.

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

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

22. For the production of FlavrSavr tomato, the sense and antisense RNA hybridize, the technique used is called as: **[1]**

a) Plyadenylation
b) RNA splicing
c) Intron splicing
d) RNAi

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

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

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

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

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

a) Azolla
b) Brassica napus
c) Bacillus thuringiensis
d) Rhizobium

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

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

27. Golden rice is a transgenic crop of the future with the following improved trait: **[1]**

a) High vitamin A content
b) High protein content
c) Insect resistance
d) High lysine (essential amino acid) content

28. In 1997, an American company got patent rights on: **[1]**

a) Turmeric
b) Soybean
c) Basmati rice
d) Maize

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

a) Serotonin
b) Histamine
c) Heparin
d) Hirudin

30. 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.

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

a) DNA sequencing
b) PCR
c) GEAC
d) Gel electrophoresis

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

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

33. rRNA is synthesized in: **[1]**

a) Nucleolus
b) Endoplasmic reticulum
c) Nucleus
d) Cytoplasm

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

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

35. 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 pure or mixed culture of organisms or cells.
d) A specific protein extracted from a single cell.

36. 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.

37. 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

38. Which out of the following is advantage of chemical safety testing on transgenic animals? **[1]**

a) Obtain results in less time
b) Testing is long process.
c) Testing can be performed easily.
d) Testing is very cost effective.

39. Transgenic mice, rabbit, pigs, sheep, cows, etc. have been produced but: **[1]**

a) More than 95% of them are sheep.
b) More than 95% of them are rabbits.
c) More than 95% of them are cow.
d) More than 95% of them are mice.

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

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

41. The current interest in the manipulation of microbes, plants, and animals have raised: **[1]**

a) Individual ethical issues
b) Unimportant ethical questions

c) Serious ethical questions
d) Serious biological questions

42. Transgenic cow Rosie, produced human protein enriched milk that contain **[1]**

a) 2.4 gram per litre
b) 3.5 gram per litre
c) 7.4 gram per litre
d) 4.2 gram per litre

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

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

44. Useful biological products are obtained from transgenic animals to treat a disease like: **[1]**

A. Emphysema
B. AIDS
C. Cystic fibrosis
D. Phenylketonuria

a) Only A, B and C
b) Only A, C and D
c) Only B, C and D
d) Only A, B and D

45. Rosie's milk is enriched nutritionally as it has: **[1]**

a) Beta lactalbumin
b) Human gene alpha lactalbumin
c) lactose
d) Vitamin A

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

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

47. 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

48. The nematode that infests and damages tobacco roots: **[1]**

a) Trichinella
b) Ancylostoma
c) Meloidogyne incognitia
d) Ascaris megalocephala

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

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

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

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

51. An MNC exploiting biological resources (turmeric) of other nation without proper authorization will be called as: **[1]**

a) Eugenics
b) Bioethics

c) Biopiracy
d) Biopatent

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

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

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

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

54. Toxicity of drug on human can be studied by using transgenic animal by **[1]**

a) Introducing complementary gene into organism
b) Inoculating gene that make them more sensitive to toxic substances
c) Introducing gene that show change in physiology of organism
d) All of the these

55. Traditional knowledge related to bio-resources can be exploited to: **[1]**

a) develop modern applications to save time and expenditure.
b) develop old applications to save time and expenditure.
c) earn money quickly.
d) earn money and publicity.

56. Some ethical standards are required to: **[1]**

a) Managing natural resources
b) Evaluate the morality
c) Get proper compensation
d) Manage new GMOs

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

a) Restriction enzyme
b) Vector
c) Introns
d) Polymerase enzyme

58. 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.

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

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

60. 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

61. Golden rice is: **[1]**

a) Long stored rice having yellow colour tint
b) Wild variety of rice with yellow coloured grains

c) A variety of rice grown along the yellow river in China

d) A transgenic rice having gene for β - carotene

62. Biopiracy is: **[1]**

a) Commercial production of GMO's.

b) Use of bio resources without proper authorization.

c) Governing research on GMO's.

d) Monitoring GMO's.

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

a) Anabolic steroids

b) Recombinant vaccines

c) Monoclonal antibodies

d) Chemotherapy drugs for cancer

64. 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

65. 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.

66. 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.

67. GEAC stands for: **[1]**

a) Genetic engineering approval committee

b) Genetic engineering appearing committee

c) Gel electrophoresis aligned culture

d) Genetic engineering approval commodity

68. 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

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

a) Tobacco budworm

b) Corn borer

c) Mosquito

d) Cotton bollworm

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

a) Autoradiography

b) Centrifugation

c) Sequencing d) PCR

71. Which one of the following products was produced as a result of DNA manipulation in the first transgenic cow **Rosie**? **[1]**

a) β-lactglucose b) α-deaminase

c) α-lactalbumin d) α-1-antitrypsin

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

a) Plasmids b) Transposes

c) RNA d) VNTRs

73. 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

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

a) Smallpox b) Botulinum toxin

c) Bacillus thuringiensis toxin d) Bacillus anthracis

75. Transgenic animals are designed to increase our knowledge about the role of the gene in disease by developing: **[1]**

a) Effect of microbes b) Model for human disease

c) Use of antibiotic to treat disease d) Pathway of vector