NEET : CHAPTER WISE TEST- 10

SUBJECT :- BIOLOGY **DATE.....**
CLASS :- 12th **NAME.....**
CHAPTER :- Biotechnology & Its Applicatuions **SECTION.....**

(SECTION-A)

1 . In Bacillus thuringiensis, the bacteria itself is not killed by the toxic protein crystals because it is
(A) Not produced by bacteria.
(B) Resistant to toxin.
(C) Present in inactive state in bacteria.
(D) Produced in very less amount in bacteria.

2. The RNA interference technique is used successfully to control the nematode
(A) Ascaris lumbricoides.
(B) Rhabditis.
(C) Wuchereria bancrofti.
(D) Meloidogyne incognita.

3. Transgenic Brassica napus is used for the synthesis of
(A) Insulin. (B) Vaccines.
(C) Heparin. (D) Hirudin.

4. Which of, the following vectors has been used for introducing nematode-specific genes in infected tobacco plants?
(A) Retrovirus
(B) Ti plasmid of Agrobacterium
(C) Bacillus thuringiensis
(D) Meloidogyne incognita

5. Select the correct statement among the following:
(A) The Flavr Savr variety of tomato remains fresh for a longer period due to the higher amount of enzyme polygalacturonase than normal tomato variety.
(B) RNA interference involves interference of RNA in synthesis of DNA.
(C) Golden rice developed through transgenic approach has high lysine content than normal rice.
(D) Transgenic food may cause toxicity and allergy in human beings, and the bacteria present in alimentary canal may become resistant to antibiotics by taking up the antibiotic-resistant gene that is present in the GM food.

6. Which of the following statements are correct regarding the process of RNA interference?
(i) RNAi has been used to prevent nematode infestation of tobacco plants.
(ii) RNAi takes place in all eukaryotic organisms as a method of cellular defence.
(iii) The method involves silencing of specific mRNA using complementary dsDNA molecule that binds and prevents translation of mRNA.
(iv) Using retrovirus vectors, nematode-specific genes were introduced into the host plant.
(A) (i) and (ii) (B) (iii) and (iv)
(C) (i) and (iii) (D) (ii) and (iv)

7. The Cry gene is obtained from
(A) Haemophilus influenzae.
(B) Agrobacterium tumefaciens.
(C) Bacillus thuringiensis.
(D) Rhizobium phaseoli

8. What does "Bt" stand for in the popular Bt cotton?
(A) Biotechnology
(B) Best type
(C) Bacillus thuringiensis
(D) Bacillus thermophilus

9. Genetically modified organisms (GMOs) have been useful for
(A) Reducing post-harvest losses.
(B) Enhancing the nutritional value of food.
(C) Making crops more tolerant to abiotic stresses.
(D) All of these.

10. The genetically engineered rice with genes associated with synthesis of carotene was developed by
(A) Nirenberg and Khorana.
(B) Ingo Potrykus and Peter Beyer.
(C) Andrew fire and Craig Mello.
(D) Temin and Baltimore.

11. Anti-sense technology has been used to partially suppress the translation of RNA in the case of
(A) Golden rice.
(B) Flavr Savr tomato.
(C) Brassica napus.
(D) Bt cotton.

12. Green Revolution resulted in improvement in crop yield and production of food grains due to
(A) Use of agrochemicals.
(B) Better crop management techniques.
(C) Introduction of high-yielding varieties with improved germplasm.
(D) All of these.

13. The genes for synthesis of B-carotene was obtained from_____, to be inserted into rice for producing transgenic golden rice.
(A) Oryza sativa
(B) Daffodil
(C) Narcissus pseudonarcissus
(D) Both (B) and (C)

14. The father of Green Revolution is
(A) Verghese Kurien.
(B) Ernst Haeckel.
(C) Norman E. Borlaug
(D) Ingo Potrykus.

15. RNAi was first discovered in 1998 by Andrew Fire and Craig Mello in a nematode worm
(A) Ascaris lumbricoides.
(B) Enterobius vermicularis.
(C) Meloidogyne incognita.
(D) Caenorhabditis elegans.

16. _____ protects the plants from frost damage.
(A) Rhizobium meliloti
(B) Trichoderma
(C) Acetobacter aerogenes
(D) Pseudomonas fluorescens

17. Match Column I with Column II and select the correct option.

Column I
A. Rhizobium
B. Bacillus thuringiensis
C. Escherichia coli
D. Pseudomonas putida

Column II
(i) Production of human insulin.
(ii) Production of Bt toxin
(iii) Scavenging of oil spills
(iv) Nif gene

(A) A-(i), B-(ii), C-(iii), D-(iv)
(B) A-(ii), B-(i), C-(iv), D-(iii)
(C) A-(iv), B-(ii), C-(i), D-(iii)
(D) A-(iv), B-(i), C-(ii), D-(iii)

18. Which of the following is incorrect with respect to Bt cotton plant?
(A) Bt cotton is, in effect, a biopesticide.
(B) Bt cotton plants are resistant to insects without the need of insecticides.
(C) Loss in crop yield due to attack by bollworms is reduced.
(D) Loss in crop yield due to attack by Bacillus thuringiensis bacterium is reduced

19. Read the following statements and choose the correct option.
Statement I: Agrobacterium tumefaciens is the causative agent of crown gall disease of monocots.
Statement II: Agrobacterium tumefaciens causes
plant tumour when a specific part of DNA from the Ti plasmid gets integrated with the plant chromosome.
(A) Both statements are correct.
(B) Both statements are incorrect.
(C) Only statement 1 is correct.
(D) Only statement II is correct

20. The first clinical gene therapy was given in ____(i)_____to a____ (ii)__ year old girl with_____ (iii)_____ deficiency. Fill in the blanks with correct option.

	(i)	(ii)	(iii)
(A)	1997	6	Tyrosinase
(B)	1990	4	Adenosine deaminase
(C)	1990	4	Phenylalanine hydroxylase
(D)	1953	7	Alkaline phosphatase

21. Which of the following is a permanent cure for ADA deficiency?
(A) Bone marrow transplantation
(B) Injecting functional ADA into patients
(C) Introducing ADA gene isolated from marrow cells into cells at early embryonic stages
(D) Introducing ADA gene into lymphocytes, which are subsequently returned to the patient

22. Genetically engineered insulin was prepared by an American company
(A) Nexia biotechnology.
(B) Eli Lilly.
(C) Alliant technologies.
(D) Gilead sciences.

23. Hybridoma are the fusion product of
(A) B-cell and macrophage.
(B) B-lymphocyte and myeloma cell.
(C) B-lymphocyte and T-lymphocyte.
(D) Neutrophils and myeloma cell.

24. Which of the following products obtained by recombinant DNA technology is used for treatment of cancer?
(A) Interferons
(B) Humulin
(C) Tissue plasminogen activator
(D) Platelet-derived growth factor

25. Genetically engineered bacteria are being used for commercially producing
(A) Cortisol. (B) Insulin.
(C) Thyroxine. (D) HCG.

26. Which of the following is an incorrect statement?
(A) The first genetically engineered human insulin was launched in 1983.
(B) The first vaccine for human use that was generated by biotechnology was polio vaccine.
(C) The first clinical case of gene therapy was given in 1990.
(D) ELISA is based on the principle of antigen-antibody interaction.

27. A genetically engineered microbe utilised for cleaningv oil spills is
(A) Agrobacterium.
(B) Escherichia coli.
(C) Pseudomonas putida.
(D) Bacillus thuringiensis.

28. The vector used for the delivery of cDNA of adenosine 47 deaminase (ADA) into patients' lymphocyte is
(A) Thermus aquaticus.
(B) Arbovirus.
(C) Retrovirus.
(D) Agrobacterium tumefaciens.

29. Which of the following cells were used for the synthesis of monoclonal antibodies?
(A) Nerve cells
(B) Cancer cells of spleen
(C) RBCS
(D) Cheek cells

30. Monascus purpureus is a yeast used commercially in the production of
(A) Citric acid.
(B) Ethanol.
(C) Urokinase for dissolving blood clots.
(D) Cholesterol-lowering statins.

31. ELISA is used to detect diseases such as HIV, where the key reagent is
(A) Catalase.
(B) Alkaline phosphatase.
(C) Radioactive probe.
(D) dsRNA.

32. Which of the following is a disadvantage of using insulin from slaughtered animals such as cattle and pig in diabetic patients?
(A) It may cause allergic reaction.
(B) It is expensive.
(C) It lowers the immunity against infections.
(D) It may cause mutations.

33. The uses of transgenic animals are
(A) To test the safety of vaccines.
(B) To study human diseases such as cystic fibrosis, haemophilia, and rheumatoid arthritis.
(C) To study the complex factors involved in growth such as insulin-like growth factor.
(D) All of these.

34. Which of the following are examples of biopiracy?
(A) Patent granted for a West African protein Brazzein in the USA.
(B) Patent granted in the USA for medicinal properties of neem and turmeric.
(C) Patent granted in the USA covering the entire basmati rice germplasm indigenous to our country.
(D) All of these.

35. Transgenic modified sheep, Tracy, was created at The Roslin institute in Scotland to produce
(A) Insulin.
(B) PDGF. GMA
(C) α -l antitrypsin.
(D) Anti-haemophilic globulin.

(SECTION-B)

36. GEAC stands for
(A) Genetic Engineering Analytical Committee.
(B) Genetic Engineering Approval Committee.
(C) Genetic Engineering Action Committee.
(D) Genetic and Environment Action Corporation.

37. Illegal and unlawful development of biomaterials without payment to concerned authorities or organisation is called
(A) Bioethics. (B) Biopatent.
(C) Biowar. (D) Biopiracy.

38. Biopiracy means
(A) Using only patented products.
(B) Using bioweapons.
(C) Using unethical means in medicine.
(D) Exploitation of bioresources without authentic permission.

39. Transgenic models can be used to investigate many human diseases such as
(A) Cancer.
(B) Alzheimer's disease.
(C) Cystic fibrosis.
(D) All of these

40. Transgenic monkey having gene for green fluorescent protein (GFP) was
(A) Polly. (B) Tracy.
(C) Dolly. (D) ANDI.

41. In 1940, Germany used Bacillus anthracis to infect livestock and exported it to other countries. This is an example of
(A) Biopiracy. (B) Bioweapon.
(C) Bioethics. (D) Biopatent.

42. Which of the following cannot be patented?
(A) Cell lines
(B) Strain of microorganism
(C) Wind energy
(D) Genetically modified organism

43. Biopatents are awarded for
(A) Cell lines.
(B) New drugs.
(C) Strains of microorganisms.
(D) All of these.

44. Genetic engineering has been successfully used for producing
(A) Transgenic cow Rosie, which produces high fat milk for making ghee.
(B) Transgenic monkeys for studying new treatments for certain cardiac diseases.
(C) Transgenic mice for testing the safety of polio vaccine before use in humans.
(D) Animals such as bulls for farm work as they have superpower.

45. Which transgenic animal has been given human genes for organ transplantation into humans without risk of rejection?
(A) Sheep (B) Pig
(C) Buffalo (D) Rabbit

46. The Indian Parliament has recently cleared the second amendment of the _____Bill, which takes issues such as patent terms, emergency provisions, and research and development initiative.
(A) RTI
(B) Indian Patents
(C) Biopiracy
(D) Genetic approval

47. GEAC makes decisions
(A) Regarding validity of GM research.
(B) Regarding safety of introducing GM organisms for public services.
(C) For creating GM foods and addressing their safety concerns.
(D) All of these.

48. Which of the following is incorrect?
(A) Dolly was the first mammal to be successfully cloned at The Roslin Institute in Edinburgh, Scotland.
(B) Polly and Molly were the first mammals to be successfully cloned and to be transgenic animals at the same time.
(C) Disease-causing agents for anthrax, smallpox, and plague are used as bioweapons.
(D) The Indian government has set up organisations such as GEAC to check biopiracy and grant biopatents.

49. Find the incorrect match.
(A) Interleukins-Enhancement of action of immune system
(B) Interferons-Treatment of cancer
(C) Dolly, Polly, Molly-Transgenic animals
(D) CFTR-Cystic fibrosis

50. Statements related to human Insulin are given below: Which statement(s) is/are correct about genetically engineered Insulin?
(a) Pro-hormone insulin contain extra stretch of C-peptide.
(b) A-peptide and B-peptide chains of insulin were produced separately in E. coli, extracted and combined by creating disulphide bond between them.
(c) Insulin used for treating Diabetes was extracted from cattle and pigs.
(d) Pro-hormone Insulin needs to be processed for converting into a mature and functional hormone.
(e) Some patients develop allergic reactions to the foreign insulin.
Choose the most appropriate answer from the options given below.
(A) (b) only
(B) (c) and (d) only
(C) (c), (d) and (e) only
(D) (a), (b) and (d) only