



BIOLOGY

BOOKS - JMD BIOLOGY (PUNJABI ENGLISH)

Biotechnology and its applications

Exercise

1. Insect tolerant gene from *Bacillus thuringiensis* is introduced using Ti plasmid

of

- A. *Escherichia coli*
- B. *Agrobacterium tumefaciens*
- C. *Haemophilus influenzae*
- D. *Arabidopsis thaliana*

Answer: B



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2. Vector for T-DNA is

A. *Salmonella typhimurium*

B. *Thermus aquaticus*

C. *Agrobacterium tumefaciens*

D. *Escherichia coli*

Answer: C



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3. A part of Ti-plasmid transferred into plant cell DNA is called

A. B-DNA

B. A-DNA

C. T-DNA

D. C-DNA

Answer: C



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4. Bt cotton has been produced by

A. In-situ hybridisation of Bt-gene

B. Northern blotting of Bt-gene

C. Cloning of Bt-gene

D. Southern blotting of Bt-gene

Answer: C



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5. Bt in popular Bt-cotton stands for

A. Biotechnology

B. Bacillus tomentosa

C. *Bacillus thuringiensis*

D. Best type

Answer: C



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6. Bt gene is got from

A. *Brassica napus*

B. *Bacillus thuringiensis*

C. *Azolla* sp.

D. Rhizobium sp.

Answer: B



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7. In plant biotechnology, root tumors are induced by

A. Rhizobium sp.

B. Agrobacterium tumefaciens

C. Agrobacterium rhizogenes

D. *Agrobacterium basillis*

Answer: B



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8. Bt toxin is

A. Protein

B. Carbohydrate

C. Lipid

D. Enzyme

Answer: A



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9. Bt cotton genes repel

- A. Bacterial pathogens
- B. Fungal pathogens
- C. Nematode parasites
- D. Insect pests

Answer: D



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10. First genetically modified plant commercially released in India is

- A. Golden rice
- B. Bt brinjal
- C. Slow ripening tomato
- D. Bt cotton

Answer: D



11. Cry *II Ab* and cry *I Ab* produce toxins that control

A. Cotton bollworms and corn borer
respectively

B. Corn borer and cotton bollworms
respectively

C. Tobacco budworms and nematodes
respectively

D. Nematodes and tobacco budworms
respectively

Answer: A



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12. Crystals of Bt toxin produced by some bacteria do not kill the bacteria because

A. Bacteria are resistant to the toxin

B. Toxin is inactive

C. Toxin is immature

D. Bacteria enclose toxin in a special sac

Answer: B



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13. Which one is correct about RNA interference

A. This technique is used to prevent the entry of *Meloidogyne*

B. It causes silencing of specific mRNA due to complementary ds RNA molecule that bind to and prevents translation of the mRNA

C. Vector used in this technique is *Bacillus thuringiensis*

D. This technique makes host plants produce cry proteins

Answer: B



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14. The gene which codes for a proteinaceous toxin has been transferred to Bt corn and cotton is

- A. Cry gene
- B. Cry enzyme
- C. Crystal gene
- D. Thurioside gene

Answer: A



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15. *Bacillus thuringiensis* (Bt strains) have been used for designing novel

- A. Bio-metallurgical techniques
- B. Bio-mineralization processes
- C. Bio-insecticidal plants
- D. Biofertilisers

Answer: C



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16. An abnormal gene is replaced by normal gene. It is called

A. Gene therapy

B. Cloning

C. Mutation

D. Gene flow

Answer: A



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17. Transgenic plants are plants having

A. No genes

B. Genes in transposition

C. Genes have no function to perform

D. Genes of another organism

Answer: D



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18. Removal and insertion of genes is

A. Genetic engineering

B. Biotechnology

C. Gene therapy

D. Cytogenetics

Answer: A



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19. In transgenics, the expression of transgene in the target tissue is known by

- A. Enhancer
- B. Transgene
- C. Promoter
- D. Reporter

Answer: D



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20. Introduction of transgenes will result in

- A. Formation of a new species
- B. Formation of a new protein
- C. Alter a biosynthetic pathway
- D. Both B and C

Answer: D



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21. SCID is caused by defective gene coding for enzyme

- A. Adenosine deaminase
- B. Adenosine transaminase
- C. Adenosine transferase
- D. Guanosine transaminase

Answer: A



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22. A plant expressing a gene from another organism is

- A. Transgenic
- B. Clone
- C. Soma clonal variant
- D. Transformed

Answer: A



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23. A technique of deliberate manipulation of genes or transfer of gene to a different organism is

- A. Gene therapy
- B. Tissue culture
- C. Hybridoma technology
- D. Genetic engineering

Answer: D



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24. First hormone produced artificially by culturing bacteria is

A. Insulin

B. Thyroxine

C. Testosterone

D. Adrenaline

Answer: A



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25. Fill in the blanks

The green Revolution succeeded in__ the food supply.



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26. Fill in the blanks

Bt toxin is coded by a gene named __.



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27. Fill in the blanks

RNAi takes place in all__ organisms.



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28. Fill in the blanks

Insulin consists of__ short polypeptides.



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29. Fill in the blanks

World diabetes day is celebrated on__.



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30. Fill in the blanks

ADA deficiency can be cured by__.



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31. Fill in the blanks

PCR is now routinely used to detect__.



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32. Fill in the blanks

ADA is introduced into cells at early__ stage.



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33. Fill in the blanks

Chains A and B are combined by__ bonds.



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34. Nematode *Meloidogyne incognita* infects the roots of tobacco plants and causes



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35. True and False Type Questions

Agrochemicals involve fertilisers and pesticides.



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36. True and False Type Questions

Vitamin C enriched rice is golden rice.



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37. True and False Type Questions

Bt protein kills lepidopterans and coleopterans .



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38. True and False Type Questions

RNAi is a method of tissue defence.



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39. True and False Type Questions

C peptide it is present in the mature insulin.



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40. True and False Type Questions

ADA deficiency causes SCID to children.



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41. True and False Type Questions

c-DNA is prepared from deoxyvirus.



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42. True and False Type Questions

Molecular diagnosis is performed by PCR.



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43. True and False Type Questions

ELISA test detects the small amount of proteins.



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44. True and False Type Questions

27 varieties of basmati rice are grown in India.



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45. List a few genetically modified plants having Bt -toxin gene.



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46. Write one use of PCR technique.



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47. At what stage a recombinant DNA is made in meiosis ?



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48. Describe the enzymes involved in rDNA technology.



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49. Name a few forms of cry gene.



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50. Give the few characteristics of GMOs.



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51. What do you mean by 'Golden rice' ?



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52. Crystals of Bt toxin produced by some bacteria do not kill the bacteria because



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53. Nematode *Meloidogyne incognita* infects the roots of tobacco plants and causes

A. An increased production of tobacco plant.

B. A reduction in the yield of tobacco plant.

C. A loss of water absorbing capacity of roots.

D. None of the above.

Answer: B



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54. What is gene therapy ? Illustrate using the example of adenosine deaminase deficiency (ADA).



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55. Name one infectious and non-infectious disease that is the major cause of mortality.



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