

Class: 12
Subject: Biology
Topic: Biotechnology and its applications
No. of Questions: 25

- Q1. What are transgenic bacteria? Illustrate using any one example.
- Q2. Compare and contrast the advantages and disadvantages of production of genetically modified crops.
- Q3. What are cry proteins? Name an organism that produce it. How has man exploited this protein to his benefit?
- Q4. Diagrammatically represent the experimental steps in cloning and expressing the human gene (say the gene for growth hormone) into a bacterium like E. coli.
- Q5. Can you suggest a method to remove oil (hydrocarbon) from seeds based on your understanding of rDNA technology and chemistry of oil?
- Q6. Does our blood have proteases and nucleases?
- Q7. Which is the most effective application of monoclonal antibodies?
- Q8. What are hybridomas?
- Q9. What was the speciality of the milk produced by the transgenic cow Rosie?
- Q10. Name a few important products of biotechnology
- Q11. What are the areas which have been responsible for the recent advances in biotechnology?
- Q12. What is difference between conventional agriculture practices and modern agriculture practices.
- Q13. Nematode-specific genes are introduced into the tobacco plants using Agrobacterium vectors to develop resistance in tobacco plants against nematodes. Explain the events that occur in tobacco plants to develop resistance.
- Q14. How did Eli synthesise the human insulin? Mention one difference between this insulin and the one produced by human pancreas.

- Q15. A. Write name of the first transgenic crop in India.
B. Insulin is extracted from which microorganism?
C. Which enzyme is most commonly used for the crop improvement in genetic engineering?
- Q16. How is 'Rosie' considered different from a normal cow?
- Q17. Describe the gene therapy procedure for and ADA-deficiency patient.
- Q18. Why is proinsulin so called? How is insulin different from it?
- Q19. A. Define cloning. What are its benefits?
B. Describe transgenics. Write briefly about a transgenic crop that has been introduced in India.
- Q20. A. Why are transgenic animals so called?
B. Explain the role of transgenic animals in (i) vaccine safety and (ii) biological products with the help of an example each.
- Q21. Extranuclear genetic material is found in
(A) Plastid and nucleus
(B) Mitochondria and plastids
(C) Nucleus and cytoplasm
(D) Mitochondria and nucleus
- Q22. The transgenic plant flavr savr tomato carries an artificial gene for
(A) Delay ripening process
(B) Longer shelf life
(C) Added flavours
(D) All of these
- Q23. Eco RI is an
(A) Ligase
(B) Polymerase
(C) Restriction enzyme
(D) Gyrase

Q24. 'Nif gene' for nitrogen fixation in cereal crops like wheat, jowar etc. is introduced by cloning

- (A) *Rhizobium meliloti*
- (B) *Bacillus thuringiensis*
- (C) *Rhizopus*
- (D) *Rhizophora*

Q25. The most common plasmid vector used in genetic engineering is

- (A) PBR 328
- (B) PBR 322
- (C) PBR 325
- (D) PBR 330

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