Reg. No. : | | | | | | | | | | | |

Question Paper Code : Q 2832

B.E./B. Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

Biotechnology

BT 1002 — PLANT BIOTECHNOLOGY

(Common to Sixth Semester)

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the three forms of DNA? How they are different?

2. What is a solenoid structure? Describe it.

3. What is the difference in gene content between plant and animal mitochondrial genome?

4. What is the striking feature of a plant chloroplast genome?

5. Which plant has stem nodules? Does it fix nitrogen?

6. Name two Nif genes and their functions.

7. Mention the chemicals which attract Agrobacterium towards the plant root.

8. What is a cointegrate vector? Mention its advantage.

9. Mention the name of a herbicide tolerant transgenic plant, and the herbicide it is resistant to.

10. Which plant or plant parts are suitable for expressing vaccines and antibodies? Why?

PART B — (5 × 16 = 80 marks)

11. (a) Elaborate on the nucleosome structure and organization of eukaryotic DNA and its impact on gene regulation.

Or

(b) How has the complete genome analysis of Arabidopsis and Rice helped in crop improvement? Discuss.

12. (a) What is cytoplasmic male sterilitry where do you find the genes controlling it? Explain with an example?

Or

(b) Discuss the importance, challenges and approaches of chloroplast transformation.

13. (a) How is Genetic engineering of Nitrogenase gene cluster carried? Describe in detail.

Or

(b) Can non leguminous plants fix nitrogen? Discuss a transgenic approach to make it possible.

14. (a) Explain the features of Agrobacterium binary vector with a schematic, and describe a strategy for improving drought tolerance in crop plants.

Or

(b) Describe the Caulimoviral vector map, use and problems associated with it.

15. (a) What is RNAi? How has this been exploited to improve plant quality characters such as fatty acid content, protein and amino acid content in seeds?

Or

(b) Discuss the various approaches to improve systemic acquired resistance in crops.

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