

Total number of printed pages: 2

UG/VI/UFET613

2024

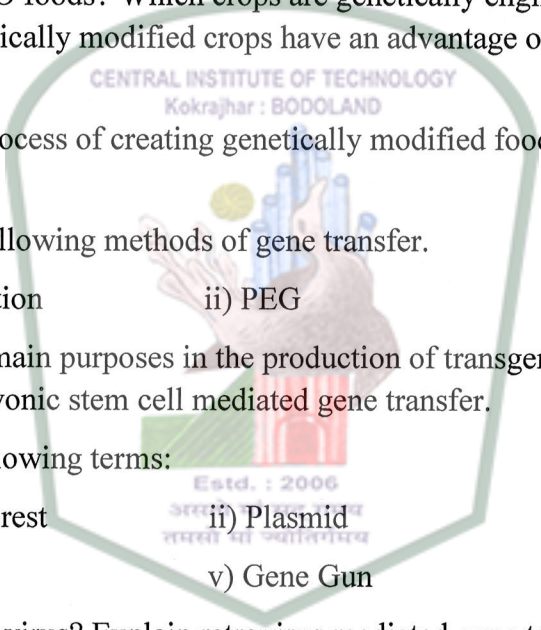
## Genetically Modified Foods

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

- 
1. a) What are GMO foods? Which crops are genetically engineered? In what ways do genetically modified crops have an advantage over conventional crops? 2+3+5
- b) Explain the process of creating genetically modified food? Give a suitable diagram. 10
2. a) Explain the following methods of gene transfer. 2x5
- i) Electroporation ii) PEG
- b) What are the main purposes in the production of transgenic animals? Explain embryonic stem cell mediated gene transfer. 4+6
3. a) Define the following terms: 2x5
- i) Gene of interest ii) Plasmid iii) Sticky end
- iv) T-DNA v) Gene Gun
- b) What is a retrovirus? Explain retrovirus mediated gene transfer technique in animals. 2+8
4. a) Explain how *Agrobacterium tumefaciens* is used as a vector in creating transgenic plants. 10
- b) What is liposome? Explain liposome mediated gene transfer method. 2+8
5. a) What are Bt Crops? Explain in brief the production process of Bt. cotton with a suitable diagram. 2+8
- b) What are restriction enzymes? Give examples with its recognition sequence. 10
6. a) Explain the following GM food. 4x3
- i) Vitamin rich tomato
- ii) Bt. soybean

- iii) Canola oil
- b) Explain the labelling and regulations of GM food. 8
- 7 a) Write brief notes on: (any four) 4x4
- i) Edible vaccines
- ii) Golden rice
- iii) Transgenic fish
- iv) Microinjection
- v) Production of insulin
- b) What is antisense technology? Give applications of antisense technology for crop improvement. 4

