

12. BIOTECHNOLOGY

MULTIPLE CHOICE QUESTIONS (1 MARK EACH)

- 1 The technique which involves addition or deletion of genes is....
A genetic engineering
B gene therapy
C gene splicing
D gene piracy
- 2 EcoRI is obtained from...
A *Escherichia coli* R13
B Escherichia coli Ry13
C *Escherichia coli* R225
D *Escherichia coli* RC
- 3 The enzyme restriction endonuclease ...
A cuts double strand of DNA
B joins strand of DNA
C cuts RNA strand
D cuts single stranded DNA
- 4 Ti plasmid being used for introducing genes in plants obtained from....
A *Agrobacterium rhizogenes*
B *Escherichia coli*
C *Agrobacterium* T20
D Agrobacterium tumefaciens
Polymerase chain reaction is most useful in....
A DNA amplification
B DNA synthesis
C protein synthesis
D selective replication of DNA
- 5 In Bt cotton a transgenic plant, Bt refers to....
A bold cotton
B Bacillus thuringiensis
C beta carotene
D tumor inducing bacteria
- 7 In transgenic crop substance provitamin A is obtained in....
A rice
B tomato
C canola
D sugarcane
- 8 In Anaemia the Recombinant protein....is produced by r-DNA technology.
A Relasein
B Insulin
C Erythroprotein
D Antoitropsin
- 9 In biotechnology GMO refers to....
A generation mediated organisms
B genetically modified organisms
C good modified organisms
D gross modified organisms
- 10 First biopatent to genetically engineered bacterium....
A Pseudomonas

- B *Agrobacterium*
- C *Azotobacter*
- D *E. coli*.

VERY SHORT ANSWER TYPE QUESTIONS (1 MARK EACH)

- 1 In which transgenic plant the substance Flavonoids obtained as antioxidants.
- 2 What is Germline therapy?
- 3 Which Recombinant proteins is obtained for Hepatitis-B by r-DNA technology.
- 4 What is plasmid?
- 5 What is Palindromic sequence?
- 6 Alu-I is obtained from which organism?
- 7 What is the role of Taq-polymerase in PCR technology?
- 8 Bt-cotton shows adverse effect on the population of which butterfly?

SHORT ANSWER TYPE QUESTIONS(SA-I) (2 MARKS)

- 1 What is Biopiracy? Explain it with respect to Turmeric.
- 2 How Biotechnology is applicable with respect to Genomics?
- 3 Explain how transgenic fish is commercially beneficial.
- 4 Write any two human disorders and to cure which recombinant proteins are produced?
- 5 For production of edible vaccines plants are used. Explain this any one example.
- 6 Write a note on uses of somatic cell gene therapy.
- 7 Define vector? write any two examples.

SHORT ANSWER TYPE QUESTIONS(SA-II) (3 MARKS)

- 1 Explain traditional use of Biotechnology.
- 2 Define biotechnology? Which are the basic principles and process of biotechnology?
- 3 What is gene cloning? Explain different tools used for it.
- 4 Explain types of enzymes used in biotechnology?
- 5 What is Recognition sequence? Explain in brief.
- 6 Define Biotechnology? How it is used in production of Human insulin.
- 7 What is GM plant? Write its different advantages.

LONG ANSWER TYPE QUESTIONS (LA) (4 MARKS)

- 1 What is PCR? Explain different steps involved in it.
- 2 Explain the following terms with respect to rDNA technology
 - i) passenger DNA
 - ii) Chimeric DNA
 - iii) Transformed cell
 - iv) restriction site
- 3 Define biotechnology. Give any three application of it?
- 4 Which are different adverse effect of biotechnology on human health and environment?
- 5 Explain biopatent and Biopiracy with different examples?