

This question paper contains 4 printed pages.

4617

Your Roll No.

B.Sc. Prog. / III

AS

**LS-304 : APPLIED BIOLOGY AND
BIOTECHNOLOGY**

Time : 3 hours

Maximum Marks : 75

*(Write your Roll No. on the top immediately
on receipt of this question paper.)*

*Use separate answer-sheets
for Sections A and B.*

SECTION A

Marks : 38

*Attempt three questions in all.
Question No. 1 is compulsory.*

1. (a) Write the contributions of : (any two)

(i) Alphonse de Condolle

(ii) Alexander Fleming

(iii) N.I. Vavilov

(iv) Craig Venter.

6

(b) Write short notes on: (any two)

(i) Minimum tilling path

(ii) Sterilization

(iii) Microarrays

P. T. O.

- (iv) Vectors. 12
2. (a) What are Ti plasmids? Why do they need to be disarmed for efficient gene transfer? 6
- (b) Explain domestication of crops with an eg. 4
3. Explain ordered clone approach for sequencing and its significance. 10
4. Write short notes on:
- (a) Functional genomics
- (b) Genetic erosion. 10
5. (a) What are edible vaccines? List their advantages. 5
- (b) Describe industrial production of citric acid. 5

SECTION B

Marks : 37

Attempt three questions in all. Question No. 1 is compulsory.

6. (a) Expand the following:
- (i) CODIS
- (ii) EST
- (iii) BAC
- (iv) DDBJ

- (v) RAPD
- (vi) GEM. 3
- (b) Differentiate between the following terms:
- (i) DNA chip and DNA probe
- (ii) Lytic and Lysogenic cycles
- (iii) cDNA and rDNA
- (iv) Ligases and Polymerases
- (v) Carriers and Reservoirs. 5
- (c) Define the following:
- (i) Zoonosis
- (ii) Serotypes
- (iii) Chemoprophylaxis. 3
- (d) Answer the following:
- (i) Any *two* modes of transmission of amoebiasis
- (ii) Pathogen and Vector of lymphatic filariasis. 2
7. (a) Differentiate between Transgenic and Knock-out mice. How are these strains created in the laboratory? Add a note on their usefulness in research. 6
- (b) What are biological data bases? Describe the types adding a special note on different nucleotide databases. 6

8. (a) Describe in detail the principle and steps in ¹⁰⁴ polymerase chain reaction for generating large quantities of DNA. 8
- (b) Describe the different types of cloning vectors. 4.
9. Write short notes on any *three* of the following:
- (i) Multiple sequence analysis
 - (ii) Somatic cell gene therapy
 - (iii) DNA markers in fingerprinting
 - (iv) DOTS chemotherapy
 - (v) Genomic libraries. 4,4,4