

This question paper contains 4+1 printed pages]

Roll No.

5023

M.Sc. (Final) EXAMINATION, 2016

BOTANY

Paper III/VII

(Plant Biotechnology and Genetic Engineering)

Time allowed : Three Hours

Maximum Marks : 100

Part A (खण्ड 'अ') [Marks : 20]

Answer all questions (50 words each).

All questions carry equal marks.

सभी प्रश्न अनिवार्य हैं । प्रत्येक प्रश्न का उत्तर पचास शब्दों से अधिक न हो । सभी प्रश्नों के अंक समान हैं ।

Part B (खण्ड 'ब') [Marks : 50]

Answer five questions (250 words each),

selecting one question from each Unit.

All questions carry equal marks.

प्रत्येक इकाई से एक प्रश्न चुनते हुए, कुल पाँच प्रश्न कीजिए । प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो । सभी प्रश्नों के अंक समान हैं ।

P.T.O.

Part C (खण्ड 'स')

[Marks : 30]

Answer any two questions (300 words each).

All questions carry equal marks.

कोई दो प्रश्न कीजिए । प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो । सभी प्रश्नों के अंक समान हैं ।

Part A

Unit I

1. (a) Define a gene.
- (b) What is PCR ?

Unit II

- (c) Define biotechnology.
- (d) Define protoplast.

Unit III

- (e) Define competence for transformation.

- (f) Write genome of plant mitochondria.

Unit IV

- (g) What are transposons ?

- (h) Write on *t*-DNA.

Unit V

- (i) What is Bioinformatics ?

- (j) Define microarray.

Part B

Unit I

2. Write on gene cloning.
3. Write on southern blotting.

Unit II

4. Describe androgenesis.

5. Write on applications of plant tissue culture in plant conservation.

Unit III

6. Write on nucleic acid hybridization.
7. Describe important features of plastome.

Unit IV

8. Describe how *Agrobacterium* is important.
9. Write on ecological risks of plant biotechnology.

Unit V

10. Write on plant Genome Projects.
11. Write on importance of immunotechnologies in biotechnology.

Part C

12. Describe PAGE.
13. Write on biological nitrogen fixation.
14. Describe :
 - (a) Somatic embryogenesis
 - (b) Cell fractionation.
15. Write on transplastomic plants.