KERALA AGRICULTURAL UNIVERSITY
B.Sc (Hons.) Ag. 2012 Admission
IV th Semester Final Examination- August-2014

Marks: 80
Cat. No: Biot. 2201 Time: 3 hours
Title:Principles of Plant Biotechnology, Bio-safety Rules & Intellectual Property Rights (2+1)

I) Define the following (10 x 1=10)

1. Callus
2. Differentiation
3. Somaclonal variation
4. Bergmans cell planting technique
5. GM crops
6. Protoplast
7. Expression vector
8. Restriction enzymes
9. Gene patenting
10. Bioinformatics

II Write short notes on any TEN (10 x 3=30)

1. Define explant and write about the selection criteria and source of explant
2. Growth regulators used in plant tissue culture
3. Define protoplast and write about fusion of protoplasts
4. Callus culture
5. DNA finger printing and its uses
6. Central dogma of molecular biology
7. Which are the different vectors used in gene cloning and why
8. General features of Ti plasmid
9. Write about principles of genetic engineering
10. TRIPS and its significance
11. Production of synthetic seed
12. Northern blotting

III Write short essays on any SIX of the following (6 x 5=30)

1. Write in brief about cell suspension culture and its types
2. What is somaclonal variation and what are its application
3. Mention invitro Androgenesis and its applications
4. Write in brief about gene cloning and its importance
5. Discuss about biotechnology related IPR issues
6. Briefly explain the equipments and consumables used in genetic engineering

7. Discuss the Marker assisted selection (MAS) and its application in crop improvement
8. Write about transgenic plants and their application

IV Write essay on ANY ONE **(1 x 10=10)**

1. What are the Biosafety guidelines for release of GM plants and briefly explain the different biosafety levels
2. Explain the nutritional requirements of plant tissue culture media

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