KERALA AGRICULTURAL UNIVERSITY

B.Sc.Hons (Ag) Degree Programme 2014 Admission
IVth Semester Final examination – July 2016

Cat. No: Biot 2201 **Marks: 50.00**
Title: Principles of Plant Biotechnology, Bio-safety Rules, and Intellectual Property Rights (2+1) **Time: 2 hour**

I Fill in the blanks **(10 x 1=10)**

1. _____ is a medium specifically formulated for root culture.
2. Bulbosum technique is used to produce _____.
3. _____ is a non purine cytokinin.
4. _____ discovered enzymatic method of protoplast isolation.
5. _____ type of restriction enzyme is commonly used in recombinant DNA technology.
6. Maximum area of GM crop globally is for _____ trait.
7. The hormonal theory of organ formation was proposed by the scientists ____ and_____.
8. _____ is an enzyme used in cDNA synthesis.
9. _____ is scorable marker present in pUC 18 vector.
10. First FDA approved recombinant DNA product is _____.

II Write short notes on any five questions **(5 x 2= 10)**

1. What is a vector? Briefly describe the desirable characteristics of a cloning vector.
2. What is embryo culture? Explain its applications.
3. What is a synthetic seed? How is it produced?
4. Describe the methods used for protoplast isolation.
5. Explain the steps in Southern blotting technique.
6. What are the biosafety issues related to GM crops.
7. Write brief notes on WIPO and TRIPS.

III Write short Essays on Any Five questions **(5 x 4=20)**

1. Describe the different types of culture.
2. Compare and contrast RAPD and RFLP.
3. Describe the applications of transgenic plants.
4. Describe the components in a plant tissue culture medium.
5. What is patenting? Briefly describe the biotechnology related IPR issues.
6. Describe the in vitro techniques for the production of haploids.
7. Describe three tier system in India which regulates the development and release of GM crops.

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

1. Describe the different methods used for gene transfer in plants.
2. Describe the different *in vitro* techniques used for crop improvement.

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