KERALA AGRICULTURAL UNIVERSITY

B.Sc (Hons.) Ag. Programme

IV th Semester Re- Examination- July/August-2015

Marks: 80

Cat. No: Biot. 2201 Time: 3 hours

Title: Principles of Plant Biotechnology, Bio-safety Rules & Intellectual Property Rights (2+1)

Q. I Fill up the blanks **(10x1=10)**

1. ..... is the most commonly used carbon source in plant tissue culture medium
2. ..... is a chemical used for encapsulating embryo to produce synthetic seeds
3. ..... is a tissue culture technique to produce triploid plants
4. .....is the enzyme necessary for synthesizing DNA from RNA
5. ..... is a molecular method for amplifying a known region in a DNA molecule
6. ..... is the commonly used bacteria for indirect gene transfer
7. .....are restriction enzymes identifying the same palindrome
8. ..... are the genetic variations spontaneously originating in plants produced through tissue culture
9. .....refers to the ability of a plant cell to divide and regenerate into a whole plant
10. ..... is the specific enzyme for DNA synthesis during PCR

Q. II Write short notes on ANY TEN **(10x3=30)**

1. History of genetic engineering
2. Totipotency and its practical significance
3. Anther culture
4. Somatic embryogenesis
5. Cybrids and their uses
6. Test tube fertilization
7. Cosmids
8. rDNA production
9. Mapping QTL
10. Geographical indications
11. RAPD and its applications
12. TRIPS and its significance

Q.III. Write short essays on ANY SIX of the following **(6x5=30)**

1. Describe the different stages of micropropagation
2. Biotechnology related IPR issues
3. Transgenic plants and their applications
4. Marker assisted selection and its application in crop improvement
5. Protoplast isolation, culture and fusion
6. DNA fingerprinting and its applications
7. Gene cloning – steps involved
8. *Agrobacterium* mediated gene transfer in genetic engineering

Q. IV Write essay on ANY ONE of the following **(1x10=10)**

1. Discuss bio-safety rules and rules related to GM crops research, development, field trials, and commercial cultivation.
2. Discuss the various constituents and their specific role in a plant tissue culture medium