KERALA AGRICULTURAL UNIVERSITY

B.Sc. (Hons.) Agriculture – 2007 Admission – IIIrd Semester

Final Examinations – February/March 2009

Title : Pbgn 2103 **Max. Marks : 80**

Course: Principles of Plant Breeding (2+1) **Time : 3 hours**

I. a) Answer the following (10 x 0.5 = 5)

1. Sudden heritable change in the phenotype of an individual
2. Genetic constitution of trisomy
3. Removal of male parts from a hermaphrodite flower
4. The International agency regulating exchange of plant material between countries
5. Expand and give the head quarters of ICRISAT
6. Centre of origin of rubber
7. One chemical mutagen and one mutant variety of rice
8. A X B → F1 . F1 X A
9. The only centre of origin in our country
10. Gynoecium maturing earlier than androecium

b) Fill up (10 X 0.5 = 5)

1. Indian Institute of Spices Research(IISR) is located at .....
2. The process of formation of somatic embryo from the callus is called .....
3. Distyly is common in family .....
4. ..... proposed the theory of centre of origin
5. The Royal Botanic garden is located at .. ..
6. Cleistogamy is found in family .....
7. Multilines are developed through ..... method of breeding
8. ..... proposed the Pureline theory
9. Head quarters of CIMMYT is .....
10. ..... is the condition where pollen from a flower of one plant falls on the stigma of other flower of the same plant

II Define (10 x 1= 10)

1. Bud pollination
2. Pure line
3. Totipotency
4. Hardy Weinberg law
5. Double cross
6. Gamma garden
7. Embryo rescue
8. Somatic hybridisation
9. Double cross
10. Polyembryoni

II a) **Differentiate (Any Five)** (5 x 2 = 10)

1. Trisomi / Nullisomi
2. Heterosis / inbreeding depression
3. Genetic Male Sterility (GMS) / CMS
4. Microcentre / Secondary centre
5. Self incompatibility / Male sterility
6. **Recurrent apomixis / Non-recurrent apomixis**

b) Short notes **(Any Five)** (5 x 2 = 10)

1. Antibiosis
2. Synthetic variety
3. Convergent cross
4. Importance of auto polyploids in plant breeding
5. Transgenic variety
6. **Parthenogenesis**

IV Answer in a paragraph (ANY FOUR) (4 x 5 = 20)

1. Describe the method of recurrent selection in population improvement
2. Define polyploidy ? How aneuploids differ from euploids
3. What is called self incompatibility ? Name the technique to overcome self incompatibility
4. Importance of mutation breeding in crop improvement
5. Describe the development of single cross hybrids

V Write essays on any (TWO) (2 x 10 =20)

1. Explain different methods of breeding for vegetatively propagated plants
2. What are the different steps involved in the evolution and release of a new variety through hybridization and selection
3. Compare Pure line selection with Mass selection . What are the advantages and disadvantages