



**THE AMERICAN COLLEGE, MADURAI**  
(An Autonomous Institution Affiliated to Madurai Kamaraj University)  
Re-accredited (2<sup>nd</sup> Cycle) by NAAC with Grade “A”, CGPA – 3.46 on a 4-point scale  
**Backlog Arrear Examination, March 2021**

**PGB 4407**

**Genetics and Evolution**

**Time: 3hrs**

**Marks: 75**

**I. Answer any FIVE of the following each not exceeding four pages. (5X15=75)**

1. How 9:3:3:1 ratio of a dihybrid cross is modified in epistatic and hypostatic interactions.
2. With a neat labeled diagram elucidate the ultra structure of plant cell and account for different types of cell division.
3. With a suitable examples, explain multiple alleles and pleiotropism.
4. Explain the chromosomal theory of heredity and sex determination in various life forms.
5. Give an account on chromosomal aberration and polyploidy.
6. Trace the conditions of the primitive earth and stipulate the events on origin of life.
7. Study linkage and crossing over with suitable examples.