# KERALA AGRICULTURAL UNIVERSITY

**B.Sc (Hons.) Agriculture 2016 Admission**
**I[st] Semester Final Examination-March-2017**

**Cat. No: Pbgn 1101** **Marks: 50.00**
**Title: Fundamentals of Genetics (2+1)** **Time: 2 hours**

**I. Fill up the blanks** **(10 x 1=10)**

1. ---------- and ---------- proposed the cell theory.
2. Lines identical in genotype except for one gene are called ----------
3. Anti-codons are located in ---------- RNA.
4. A differential reproduction rate of different genotypes in a population is called ----------
5. ----------is the phenomenon of single gene affecting more than one character.
6. ----------is a group of structural genes whose transcription is regulated by regulator, promoter and operator genes.
7. ----------is the inability of functional pollen grains to effect fertilization and seed set in the same plant.
8. A gene the presence of which reduces the spontaneous mutation of another gene or genes in the genome called ----------
9. ----------is the degree of phenotypic expression of a gene in different individuals.
10. A DNA segment capable of changing location within chromosome is called ----------

**II Write Short notes on ANY FIVE** **(5 x 2 = 10)**

1. Mitosis
2. Chromosome theory of heredity
3. Codominance
4. Polygenes and oligogenes
5. Crossing over
6. DNA Polymerase
7. Central dogma

**III Answer any FIVE questions** **(5 x 4 =20)**

1. What are the differences between DNA and RNA
2. Define genetic material? What are its properties?
3. What is one-gene-one-enzyme hypothesis? Its validity?
4. Briefly describe the classification of mutation.
5. What is genetic code? Give its characteristics and functions.
6. What are mutagens? Briefly explain the action of non-ionizing radiations.
7. Briefly explain the characteristic features of cytoplasmic inheritance.

**IV Write Essay on any ONE** **(1 x 10 = 10)**

1. Describe the double helix model of DNA structure (with diagrams).
2. Describe the law of segregation and its consequences in individuals with suitable examples.

**********