KERALA AGRICULTURAL UNIVERSITY

B.Sc.(Hons.) Agriculture – 2010 Admission - I[st] Semester

Final Examination – March/April 2011

Cat. No. : Pbgn 1102 Max. marks: 80

Title : Principles of Genetics and Cytogenetics (2+1) Time : 3 hours

(10 x 1 = 10 Marks)

I. Fill up the blanks

1. Diagramatic representation of karyotype is called _____
2. The genetics of blood group in human is controlled by _____
3. Tendency of genes to be inherited together is due to the phenomenon of _____
4. Genotypic and phenotypic ratio will be same when there is _____ dominance
5. An unpaired chromosome during meiosis is called _____
6. Synapsis involves _____ between homologous chromosomes at meiosis
7. A diploid organism with one extra chromosome is called _____

State True or False

8. No genes are common to both the X and Y chromosomes
9. Telomeres make the ends of chromosomes stable
10. Crossing over is due to the formation of chiasmata

II. Write short notes / answers an ANY TEN ***(10 x 3 = 30)***

1. Define Mendel's Law of inheritance
2. What are the differences between macromutant and micromutant?
3. What are the different types of RNA?
4. What is Lac operon?
5. Distinguish crossing over and linkage
6. What is genetic code?

7. What is the difference between mutagen and mutant?
8. What is pleiotropism?
9. What is incomplete penetrance?
10. What is transcription?
11. What is plasma gene?
12. What is multiple allele?

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

1. List out the factors affecting crossing over.
2. Discuss about the methods for estimation of linkage.
3. Write about paracentric and pericentric inversion
4. Enumerate the functions of mitochondria and chloroplast.
5. What is preformation theory and epigenetic theory?
6. Explain about multiple factor hypothesis with examples.
7. Characteristic features of mutation
8. What are the different types of gene action?

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

1. Write in detail about structural chromosomal aberrations with diagrams.
2. Discuss about the different models of DNA replication and Meselson and Stahls experiment.