KERALA AGRICULTURAL UNIVERSITY

B.Sc. (Hons.) Agriculture – 2009 Admission

I[st] Semester Final Examination - March 2010

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

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

I. Fill in the blanks(Qn. No. 1 to 10) (10× 1 =10)

1. Charles Darwin published his classic book ---------- in 1859.
2. Mutation theory was proposed by ----------.
3. ----------produced the first artificial hybrid in plants.
4. The double helix model of DNA structure was proposed by ---------- and ----------
5. The operon concept was proposed by ---------- and ----------
6. Multiple factor hypothesis was proposed by ----------
7. ----------are enzymes that produce internal cuts, called cleavage in DNA molecules
8. In complementary gene action F_2 ratio will be ----------
9. The term chromosome was coined by----------in 1888.
10. The proportion of homozygous offspring from the cross AaBbCc x AaBbCc is ----

II. Write short notes on ANY TEN (Qn. No. 1 to 12) (10× 3 =30)

1. Mendel's laws of inheritance
2. Genetic code
3. Replicon
4. Bridging species
5. S phase
6. Synthetic allopolyploid
7. Interference
8. Epistasis
9. Translocation
10. Aneuploidy
11. Multiple alleles
12. Crossing over

P.T.O.

III. Write short essays on ANY SIX of the following (Qn.No. 1 to 8)

(6× 5 =30)

1. Briefly describe the events that characterize each stage of mitosis.
2. In maize, tall plant is dominant over dwarf plant, If a homozygous tall is crossed with a dwarf plant, describe the following:
   a. The genotype and phenotype of F_1 and F_2 progeny.
   b. Gametes produced by F_1
3. Contrast the roles of tRNA and mRNA during translation and list all enzymes that participate in the transcription and translation process.
4. Define linkage and crossing over. Briefly describe the different types of linkage.
5. Compare and contrast disomics and diploids
6. Differentiate Karyotype and Idiogram
7. Briefly explain multiple allelism with any one example
8. Describe the structure and function of lysosome

IV. Write essay on ANY ONE (Qn. No. 1 to 2)

(1× 10 =10)

1. Describe briefly the various views about the origin and evolution of upland cotton.

2. Define gene interaction. Mention the different types of gene interaction and explain any one of the gene interaction with the help of suitable examples.

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